

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY**  
**School of Engineering Faculty Personnel Record**

Date: October 2016

Name: Muriel Médard  
 Department: Electrical Engineering  
 and Computer Science

1. Education:

| <u>School</u> | <u>Degree</u>  | <u>Date</u> |
|---------------|--|-------------|
| MIT           | Bachelor of Science in Electrical Engineering                        | 1989        |
| MIT           | Bachelor of Science in Mathematics                                   | 1989        |
| MIT           | Master of Science in Electrical Engineering                          | 1991        |
| MIT           | Bachelor of Science in Humanities (Russian Studies)                  | 1991        |
| MIT           | Doctor of Science in Electrical Engineering<br>(minor in Management) | 1995        |

2. Non-MIT experience:

| <u>Employer</u>                            | <u>Position</u>     | <u>Beginning</u> | <u>Ending</u> |
|--|---------------------|------------------|---------------|
| University of Illinois<br>Urbana-Champaign | Assistant Professor | August 1998      | December 1999 |
| NYNEX Science & Technology                 | Intern/consultant   | June 1989        | December 1989 |

3. History of MIT Appointments:

| <u>Rank</u>                          | <u>Beginning</u> | <u>Ending</u> |
|--------------------------------------|------------------|---------------|
| MIT Lincoln Laboratory Staff Member  | September 1995   | June 1998     |
| Assistant Professor                  | January 2000     | January 2003  |
| Associate Professor (without tenure) | January 2003     | May 2005      |
| Associate Professor (with tenure)    | May 2005         | May 2008      |
| Professor                            | May 2008         |               |
| Cecil H. Green Professor             | April 2014       |               |

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Consulting Record:

| <u>Firm</u>                                 | <u>Beginning</u> | <u>Ending</u>  |
|---|------------------|----------------|
| NYNEX Science and Technology                | September 1989   | December 1989  |
| Sycamore Networks                           | March 2000       | June 2000      |
| Pebbles Technologies/Malachite Technologies | June 2000        | January 2004   |
| Vanu Incorporated                           | June 2002        | September 2003 |
| Blackwave                                   | July 2008        | August 2009    |
| MIT Lincoln Laboratory                      | October 2009     | present        |
| AT&T  | March 2010       | January 2011   |
| Steinwurf                                   | October 2011     |                |
| CodeOn                                      | November 2011    |                |

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| Fried, Frank, Harris, Shriver & Jacobson LLP | Summer 2012 | Summer 2013 |
| Patterson, Belknap, Webb & Tyler LLP         | Summer 2015 |             |

5. Department and Institute Committees, Other Assigned Duties:

| <u>Activity</u>  | <u>Beginning</u>     | <u>Ending</u> |
|--|----------------------|---------------|
| Graduate Counselor (Dept)  | 2000                 | present       |
| Graduate Admissions Reader (Dept)<br>(domestic and international, for different years:<br>Africa and Australia; Korea; China and Taiwan; France) | 2000                 | present       |
| House Fellow, Green Hall (Institute)   | 2001                 | 2002          |
| Associate House Master, Simmons Hall (Institute)   | 2002                 | 2006          |
| Undergraduate Admissions Reader (Institute)  | 2004, 2009           |               |
| Organized "Meet Course VI" outreach event<br>(Department)  | 2003, 2008           |               |
| Lemelson Prize Committee (Institute)   | 2000                 |               |
| Sprowls Award Committee (Department)   | 2003, 2005           |               |
| Baker Housemaster Search Committee (Institute)   | 2004                 |               |
| EECS Graduate Admissions Coordinator<br>for Areas I and VII (Department)   | 2004<br>2007         | 2005<br>2008  |
| EECS Graduate Admissions Co-Coordinator<br>for Area I (Department)   | 2005                 | present       |
| Search Committee Member (Department)   | 2006-2007, 2011-2014 |               |
| Simmons Hall Associate Housemaster Search<br>Committee (Institute)   | 2005                 | 2006          |
| Associate Director, Laboratory for Information<br>and Decision Systems (Institute)   | 2005                 | 2007          |
| Next House Housemaster (Institute)   | 2006                 | 2008          |
| Member of the Committee on Student Life (Institute)  | 2006                 | 2010          |
| Member of the Search Committee for the<br>Dean for Student Life (Institute)  | 2007                 | 2008          |
| Member of the Committee on Outside Professional<br>Activities (Institute)  | 2007                 | 2010          |
| Dean for Undergraduate Education Faculty<br>Advisory Committee (Institute)   | Spring 2008          |               |
| Member of the Institute Committee on Intellectual<br>Property (Institute)  | 2010                 | present       |
| Chair of the Committee on Student Life (Institute)   | 2010                 | 2010          |
| Co-chair of the Student Life Committee of the Institute<br>Task Force (Institute)  | 2009                 | 2011          |
| Co-chair Student Engagement Committee (Institute)  | 2009                 | 2010          |
| Research Laboratory of Electronics Advisory<br>Committee/ now Steering Committee (Laboratory)  | 2009                 | present       |
| Co-chair Graduate Student Experience Committee<br>(Department)   | 2011                 | 2012          |
| Co-chair Visiting Student Fee Committee (Institute)  | 2011                 | 2012          |
| Steering Committee Member MIT Dalai Lama<br>Center for Ethics (Institute)  | 2010                 | present       |

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| Member of the Martin Luther King Visiting Scholars Steering Committee | 2013 | present |
| Chair of the Faculty Committee on Planning (Institute)                | 2014 | 2017.   |
| Member of the Institute Building Committee (Institute)                | 2014 | 2017    |
| Co-chair of the Boole-Shannon Celebration (Institute)                 | 2015 | 2016.   |

#### 6. Professional Service:

| <u>Activity</u>   | <u>Beginning</u>             | <u>Ending</u> |
|---|------------------------------|---------------|
| Program Committee Member for International Society for Optical Engineering (SPIE), Conference on Computer and Network Security  | 1996                         | 1997          |
| Co-organizer of session for Miniconference on Information Theory at the 1999 International Conference on Communications   | 1998                         | 1999          |
| Co-organizer of the new optical networking track for the Allerton Conference on Communication, Control, and Computing   | 1998                         | 2003          |
| Associate Editor for Networks, Journal of Optical Networks of the Optical Society of America  | 2001                         | 2002          |
| Member of the Information Science and Technology (ISAT) study group for DARPA on "Robust Networks for Critical Missions and Critical Infrastructure"                                      | 2002                         | 2002          |
| Organizer of the Optical Networks session for the 17 <sup>th</sup> IEEE Computer Communications Workshop  | 2002                         | 2002          |
| Technical Program Committee member for the High Speed Networking Conference, 2002   | 2001                         | 2002          |
| Technical Program Committee member for the IEEE International Symposium on Information Theory   | 2004, 2006, 2010, 2014, 2015 |               |
| Session Organizer, Wireless Communications and Networking Conference, 2003  | 2002                         | 2002          |
| Technical Program Committee member for the International Workshop on Design of Reliable Communication Networks (DCRN) 2003 (IEEE)   | 2002                         | 2003          |
| Technical Program Committee member for ITCom 2003 (SPIE)  | 2002                         | 2003          |
| Guest Editor, IEEE Journal of Lightwave Technology Special Issue on Optical Networks  | 2002                         | 2003          |
| NSF review panelist   | 2002                         | present       |
| Co-organizer of the new network coding track for the Allerton Conference on Communication, Control, and Computing   | 2003                         | 2006          |
| Program Committee Member, 2003 International Workshop on Optical Networks Control and Management (ONCM'03) (in conjunction with the 32nd International Conference on Parallel Processing) | 2003                         | 2003          |
| Associate Editor, Optical Communications and Networking Series of the IEEE Journal on Selected Areas in Communications  | 2003                         | 2007          |
| Technical Program Committee Member, 2004 International Workshop on Wireless   | 2003                         | 2004          |

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| Ad-hoc Networks (IWWAN)   |      |      |
| Associate Editor, Communications, for the IEEE Transactions on Information Theory   | 2003 | 2006 |
| Treasurer, IEEE Information Theory Society  | 2004 | 2007 |
| Co-organizer of an invited session on Network Coding for the 38th Annual Conference on Information Sciences and Systems, Princeton University                     | 2003 | 2004 |
| Co-organizer of an invited session on Network Coding for the Communication Theory Workshop  | 2003 | 2004 |
| Member of the Information Science and Technology (ISAT), an advisory group to DARPA   | 2003 | 2006 |
| Technical Program Committee member for Globecom 2004 Workshop on GMPLS  | 2004 | 2004 |
| Technical Program Committee Member for the 2004 Information Theory Workshop   | 2003 | 2004 |
| Technical Program Committee Member, 2005 International Workshop on Wireless Ad-hoc Networks (IWWAN)   | 2004 | 2005 |
| Guest Editor, Joint Special Issue of the IEEE Transactions on Information Theory and the IEEE/ACM Transactions on Networking on Networking and Information Theory | 2004 | 2006 |
| Technical Program Committee Member, Symposium on Information Theory of Wireless Networks, as part of IEEE WirelessCom 2005  | 2004 | 2005 |
| Technical Program Committee member for the International Workshop on Design of Reliable Communication Networks (DCRN) 2005 (IEEE)                                 | 2004 | 2005 |
| Technical Program Committee member for Broadnets 2005   | 2005 | 2005 |
| Co-chair of Netcod 2006 (Second Workshop on Network Coding, Theory, and Applications) in combination with WiOpt   | 2005 | 2006 |
| Technical Program Committee member for the 2006 Information Theory Workshop   | 2005 | 2006 |
| Session Organizer for the 2006 International Zurich Seminar on Communications (IZS)   | 2005 | 2006 |
| Technical Program Committee member for the 2006 IEEE International Conference on Ultra Wideband (ICUWB)   | 2005 | 2006 |
| Technical Program Committee Co-Chair for the 2007 IEEE International Symposium on Information Theory  | 2005 | 2007 |
| Optics East 2006 ITCOM Technical Program, Committee Member  | 2005 | 2006 |
| TPC member (PIMRC '06)  | 2006 | 2006 |
| IEEE Alexander Graham Bell Medal Committee  | 2006 | 2015 |
| Invited Session organizer for INFORMS 2006  | 2006 | 2006 |
| Co-organizer of the Network Optimization track for the Allerton Conference on Communication, Control, and Computing   | 2006 | 2006 |
| Technical Program Committee Member RAWNET 2007,   | 2006 | 2007 |
| Member of the Board of Governors for the IEEE   | 2004 | 2014 |

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| Information Theory Society   |  |      |
| Associate Editor, IEEE Journal on Lightwave Communications   | 2007   | 2012 |
| Technical Program Committee Member, INFOCOM 2008   | 2007   | 2008 |
| Technical Program Committee Member   | 2007   | 2008 |
| International Symposium on Information Theory and its Applications   |  |      |
| Audit Committee Member for the School Computer and Communication Sciences of Ecole polytechnique fédérale de (EPFL)                                    | 2007   | 2007 |
| TPC Member ICC Optical Network Symposium   | 2007   | 2007 |
| Tutorial co-chair PIMRC '08  | 2007   | 2008 |
| Guest Editor in Chief IEEE Transactions on Information Forensics and Security: Special Issue on Statistical Methods for Network Security and Forensics | 2007   | 2008 |
| General co-chair, 2012 IEEE International Symposium on Information Theory  | 2008   | 2012 |
| Technical program member, International Symposium on Information Theory and its Applications 2008  | 2008   | 2008 |
| Technical program member, IEEE International Workshop on Wireless Network Coding 2009  | 2008   | 2009 |
| Technical program co-chair for IEEE/IFIP WiOpt (International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks) 2009    | 2008   | 2009 |
| Session organizer for the IEEE Information Theory Workshop 2009  | 2008   | 2009 |
| Technical program member, DRCN 2009  | 2008   | 2009 |
| Technical program member, IEEE WINC 2009   | 2009   | 2009 |
| Technical program member, CoCoNets 2009  | 2009   | 2009 |
| Technical program member, IEEE Globecom Communication Theory Workshop  | 2009   | 2009 |
| Technical program member, Network Coding Workshop (Netcod)   | 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2014, 2015 |      |
| Technical program member, ITW 2010   | 2009   | 2010 |
| Technical program co-chair for ACM Conference on emerging Networking EXperiments and Technologies (ACM CoNEXT 2010)                                    | 2009   | 2010 |
| Chair and founder, Outreach Committee IEEE Information Theory Society  | 2008   | 2009 |
| Guest Editor, "Trading Rate for Delay at the Transport Layer", IEEE Journal on Selected Areas in Communications  | 2009   | 2011 |
| Second Vice-President, IEEE Information Theory Society   | 2010   | 2011 |
| Founding member, Green Touch   | 2010   | 2011 |
| IEEE Hamming Medal Committee member  | 2010   | 2016 |
| IEEE Joseph Lo Cicero Award Committee member   | 2010   | 2011 |
| IEEE Donald W. McClellan Meritorious Service Award Committee member  | 2010   | 2011 |
| Chair, IEEE Joint Information Theory and Communication   | 2010   | 2011 |

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| Society Best Paper Award Committee   |            |         |
| Awards Committee Member for IEEE Information Theory Society  | 2010       |         |
| Chair, IEEE Chapter Award Committee  | 2010       | 2010    |
| IEEE Shannon Award Committee Member  | 2010, 2011 |         |
| TPC member, WiOpt 2011   | 2011       |         |
| TPC member, Valuetools 2011  | 2011       |         |
| TPC member, ITW 2011   | 2011       |         |
| Chair, IEEE Information Society Best Paper Award Committee   | 2011       |         |
| Chair, IEEE Rice Paper Award Committee   | 2011       |         |
| TPC member, Globecom Communication Theory Symposium 2011   | 2011       |         |
| TPC member, Globecom Optical Networking Symposium 2011   | 2011       |         |
| TPC member, ICC Communication Theory Symposium 2012  | 2011       | 2012    |
| TPC member, ICC Optical Networking Symposium 2012  | 2011       | 2012    |
| TPC member ICCCN 2011  | 2011       |         |
| First Vice-President, IEEE Society   |            | 2011    |
| Member IEEE Information Theory Society Conference Committee  | 2011       | 2013    |
| Member of Scientific Council of Digiteo  | 2011       | 2015    |
| Guest Editor, "Special Issue on Network Coding and Applications", Physical Communication, Elsevier | 2011       | 2012    |
| Guest Editor, "In Network Computation", IEEE Journal on Selected Areas in Communications           | 2011       | 2013    |
| TPC member, MILCOM Unclassified Programs Waveforms and Signal Processing Track                     | 2011       | 2011    |
| Member of the International Advisory Committee of CominLabs  | 2011       | 2015    |
| IEEE Vehicular Technology Society Distinguished Lecturer   | 2011       | present |
| Chair IEEE Joseph Lo Cicero Award Committee  | 2011       | 2011    |
| Chair IEEE Information Theory Society Awards Committee   | 2011       | 2011    |
| TPC member, Coconet 2012   | 2012       | 2012    |
| President of IEEE Information Theory Society   | 2012       | 2012    |
| Chair of the IEEE Claude E. Shannon Award Committee  | 2012       | 2012    |
| Chair of the IEEE A. D. Wyner Distinguished Service Award  | 2012       | 2012    |
| General co-chair IEEE International Symposium on Information Theory                                | 2009       | 2012    |
| General co-chair of Netcod 2012  | 2011       | 2012    |
| IEEE Communications Society Tutorial Paper   | 2012       | 2012    |
| Paper Award Committee Member   |            |         |
| Chair of the IEEE Leonard Abraham Prize Committee  | 2012       | 2012    |
| Member, Information Theory Society External Nomination Committee                                   | 2012       | 2012    |
| Member of the Editorial Board of Foundations and Trends on Communications and Information Theory   | 2012       | present |
| Member of IEEE Bell Medal Committee  | 2012       | present |
| Junior Past President, Information Theory Society  | 2013       | 2013    |
| Chair of the Scientific Advisory Board,  | 2013       | 2015    |

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|---|-------|---------|
| Center of Competence for Future Cities at the University of Porto                               |       |         |
| Member of the Steering Committee of the IEEE Transactions on<br>Network Science and Engineering | 2013  | present |
| TPC Member of ITW 2014  | 2014  | 2014    |
| TPC Member of PODC 2014   | 2014  |         |
| Chair of the IEEE Hamming Medal Committee   | 2013  | 2015    |
| Editor-in-Chief, IEEE Journal on Selected Areas in Communications                               | 2014  | present |
| Technical co-chair Globecom Optical Networks and Systems<br>Symposium 2014                      | 2014  |         |
| Publicity Chair, Netcod 2015  | 2014  |         |
| MIT Martin Luther King Program Advisory Committee Member  | 2014  |         |
| TPC Member of MONAMI 2014   | 2014  |         |
| TPC Member of the Fourth International Castle Meeting<br>on Coding Theory and Applications      | 2014  |         |
| Chair IEEE Information Theory Society Nominations and<br>Appointment Committee                  | 2014  |         |
| Member of the IEEE Founders Medal Committee   | 2014  | present |
| IEEE Globecom Paper Award Committee   | 2015  |         |
| TPC Member of DRCN 2016   | 2015  |         |
| TPC Member of ISIT 2016   | 2016  |         |
| TPC Member of ITW 2016  | 2016  |         |
| Advisory Committee Netcod 2016  | 2016. |         |
| Scientific Committee Castle Meeting on Coding Theory<br>and Applications                        | 2016  | 2017    |
| TPC Co-Chair, WiOpt 2017  | 2017  |         |
| Chair of the IEEE Medals Council  | 2017  |         |
| Member of the IEEE Awards Board   | 2017  |         |
| Member of the IEEE Awards Board Operating Committee   | 207   |         |
| Member of the IEEE Awards Board Awards Review Committee   | 2017  |         |
| Chair of the IEEE Bell Medal Committee  | 2016  | 2017.   |

#### 7. Awards Received:

| <u>Award</u>   | <u>Date</u> |
|--|-------------|
| NSF Career Award   | 2001        |
| IEEE Leon K. Kirchmayer Prize Paper Award, presented by the IEEE<br>Board of Directors for the most outstanding paper by an author(s) under<br>30 years of age, at the date of submission of the original manuscript<br>M. Médard, "The Effect Upon Channel Capacity in Wireless<br>Communications of Perfect and Imperfect Knowledge of the Channel,"<br><i>IEEE Transactions on Information Theory</i> , Vol. 46 Issue 3, May 2000,<br>Pages: 935-946. | 2002        |
| Recipient of a 2003 Esther and Harold E. Edgerton MIT Chair  | 2002        |
| Best Paper Award for the Fourth International Workshop<br>on the Design of Reliable Communication Networks (DRCN)<br>G. Weichenberg, V. Chan, M. Médard,<br>"Reliable Architectures for Networks Under Stress,"  | 2003        |

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| Co-recipient of the Harold E. Edgerton Faculty Achievement Award, established in 1982 to honor junior faculty members “for distinction in research, teaching and service to the MIT community.”  | 2004             |
| Recognized in 2004 as a Siemens “outstanding mentor” for my work with high school students in science and engineering  | 2004             |
| Gilbreth Lectureship, National Academy of Engineering  | 2007             |
| 2009 IEEE Communications Society and Information Theory Society Joint Paper Award  | 2009             |
| T. Ho, Médard, M., Koetter, R., Karger, D. R. Effros, M., Shi, J., and Leong, B., “A Random Linear Network Coding Approach to Multicast,” <i>IEEE Transactions on Information Theory</i> , vol. 52, no. 10, pp. 4413-4430, October 2006.   |                  |
| 2009 IEEE William R. Bennett Prize in the Field of Communications Networking,  | 2009             |
| S. Katti, Rahul, H., Hu, W., Katabi, D., Médard, M., and Crowcroft, J., “XORs in the Air: Practical Wireless Network Coding”, <i>IEEE/ACM Transactions on Networking</i> , Volume 16, Issue 3, June 2008, pp. 497 – 510                    |                  |
| MIT EECS Faculty Research Innovation Fellowship  | 2011             |
| Distinguished Lecturer, IEEE Vehicular Technology Society  | 2011-2018        |
| Distinguished Lecturer, IEEE Information Theory Society  | 2013-2015        |
| Netapp Faculty Fellow  | 2012, 2013, 2014 |
| MIT EECS Graduate Student Association Mentor Award   | 2013             |
| Best Paper Award for the ICC Wireless Communications Symposium, G. Angelopoulos, Paidimarri, A., Chandrakasan, A. P., and Médard, M., “Experimental Study of the Interplay of Channel and Network Coding in Low Power Sensor Applications” | 2013             |
| Best Paper Award for the International Conference on Mobile Networks and Management (MONAMI) 2013,   | 2013             |
| M. Kim, Klein. T., Soljanin, E., Barros, J, and Médard, M., “Trade-off Between Cost and Goodput in Wireless: Replacing Transmitters with Coding”   |                  |
| Best Paper Award for the IEEE International Symposium on Power Line Communications (ISPLC) 2014,   | 2014             |
| J. Bilbao, Calvo A., Armendariz, I., Crespo, P., and Médard, M., “Reliable Communications with Network Coding in Narrowband Powerline Channel”   |                  |
| Cecil H. and Ida Green Chair for EECS  | 2014-2019        |
| Best Paper Award for the IEEE International Symposium on Network Computing and Applications (NCA14),   | 2014             |
| V. Cadambe, Lynch, N., Médard, M., and Musial, P., “A Coded Shared Atomic Memory Algorithm for Message Passing Architectures”.   |                  |
| Named by Thomson Reuters as One of the World’s Most Influential Scientific Minds   | 2014             |
| Best Paper Award for ICC   | 2015             |
| Y. Cui, Médard, M., Yeh, E., Leith, D., and Duffy, K., “Optimization-Based Linear Network Coding for General   |                  |



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|---|------|
| Connections of Continuous Flows”<br>Best Paper Award for ICC  | 2015 |
| X. Chen, Jukan, A., and Médard M.,<br>“Linear Network Coding and Parallel Transmission Increase<br>Fault Tolerance and Optical Reach” |      |
| IEEE WICE Outstanding Achievement Award   | 2016 |
| On the ACM inaugural list of “10 Women in Networking/Communications<br>that You Should Know.”   | 2016 |

8. Current Organization Membership:

Organization

Offices Held

IEEE Information Theory Society

Treasurer, 2004-2007  
Member, Board of Governors, 2004-2014,  
Second Vice-President, 2010, First Vice-  
President 2011, President 2012, Junior Past  
President 2013, Senior Past President 2014

IEEE Communications Society

Editor-in-Chief, Journal on Selected Areas  
in Communications; Steering Committee  
Member on Transactions on Network  
Science

IEEE (Fellow)  
Eta Kappa Nu  
Tau Beta Pi  
Sigma Xi

9. Patents and Patent Applications Pending:

1. M. Médard, S.G. Finn, R.A. Barry, R.G. Gallager., “Method and Apparatus for Automatic Protection Switching,” US Patent 6,047,331
2. M. Médard, J. D. Moores, K. L. Hall, K. Rauschenbach, S. Parikh, A. H. Chan, “A Pseudorandom Noise Sequence Noise Generator,” US Patent 6,201,870
3. R. Bergman, M. Médard, “Fault Isolation for Communication Networks for Isolating the Source of Faults Comprising Attacks, Failures, and Other Network Propagating Errors,” US Patent 6,442,694
4. M. Médard, S.R. Chinn., “Method and Apparatus for Detecting Security Attacks in Communication Networks,” US Patent 6,507,012 and 6,507,012 B1
5. M. Médard, S.R. Chinn., “Method and apparatus for detecting malfunctions in communication systems,” US Patent 6,603,112
6. M. Médard, S.R. Chinn., “Method and apparatus for detecting malfunctions in communication systems”, US Patent 6,727,490

7. S.G. Finn, M. Médard, R.A. Barry, "Method and apparatus for automatic protection switching", US Patent 6,728,205
8. M. Garofalo, G. Ciancaglini, M. Médard, J. Hart, "Multiple Switch Protected Architecture," US Patent 7,263,060
9. S. Chinn, G. Ciancaglini, M. Garofalo, J. Hart, S. Lumetta, M. Lupinacci, M. Médard, J. D. Moores, G. Oliveira, S. Parikh, M. Parquette, W. Proulx, D. Proulx, M. Rydeen, "An Integrated System and Method for Controlling Telecommunication Network Data Communicated over a Local Area Network and Storage Data Communicated over a Storage Area Network," US Patent 7,289,499
10. G. Ciancaglini, M. Garofalo, J. Hart, S. Lumetta, M. Médard, J. Moores, S. Parikh, M. Parquette, W. Proulx, M. Rydeen, "Fault Tolerant Optical Data Communication Network Having Auto Discovery," US Patent 7,406,029
11. D.S. Lun, M. Médard, T. Ho, R. Koetter, N. Ratnakar, "Minimum Cost Routing with Network Coding," US Patent 7,414,978
12. S. Lumetta, M. Médard, "Fault Tolerant Optical Data Communication Network," US Patent 7,603,033
13. G. Ciancaglini, S. Lumetta, M. Médard, J. Moores, S. Parikh, M. Parquette, " Multiple access protocol system and related techniques for multi-gigabit optical wavelength division multiplexed local area networks," US Patent 7,646,979
14. M. Médard, S. Ray, L. Zheng, "Fiber Aided Wireless Network Architecture," US Patent 7,684,709
15. T. Ho, R. Koetter, M. Médard, D. Karger, M. Effros, "Randomized Distributed Network Coding," US Patent 7,706,365
16. S. Deb, M. Médard, R. Koetter, "A Random Linear Coding Approach to Distributed Data Storage," US Patent 8,046,426
17. J.-K. Sundararajan, D. Shah, M. Médard, P. Sadeghi, "Feedback-based online network coding", US Patent 8,068,426
18. S. Deb, M. Médard, "A Network Coding Approach to Rapid Information Dissemination," US Patent 8,102,837
19. X. Shi, M. Médard, R. Koetter, N.A. Koetter, D.S. Lun, "Methods and Apparatus for Automated Base Calling on Multiple DNA Strands", US Patent 8,126,235
20. J.-K. Sundararajan, D. Shah, M. Médard, M. Mitzenmacher, J. Barros and S. Jakubczak "Method and Apparatus Providing Network Coding Based Flow Control", US Patent 8,130,776
21. D. Lucani, M. Médard, M. Stojanovic, "Random Linear Network Coding for Time Division Duplexing", US Patent 8,279,781
22. M. Médard, M. Aikens, L. M. Colon, J. Hurley, M. Kilian, M. McShane, M. Warres, R.W. Scheifler, "Arrangements and Methods for Access to Stored Data", US Patent 8,352,602
23. S. Deb, M. Médard, R. Koetter, "A Random Linear Coding Approach to Distributed Data Storage," US Patent 8,375,102
24. G. Angelopoulos, M. Medard, A. Chandrakasan, "Partial Packet Recovery in Wireless Networks", US Patent 8386892
25. D. Lucani, M. Médard, M. Stojanovic, "Random Linear Network Coding for Time Division Duplexing", US Patent 8,451,756
26. D. Lucani, M. Kim, F. Zhang, X. Shi, M. Médard, M.-J. Montpetit, "Network coding for multi-resolution multicast", US Patent 8,473,998

27. S. Feizi-Khankandi, M. Médard, "Method and Apparatus to Perform Functional Compression", US Patent 8,482,441
28. J.-K. Sundararajan, D. Shah, M. Médard, M. Mitzenmacher, J. Barros and S. Jakubczak "Method and Apparatus Providing Coding Based Flow Control", US Patent 8,526,451
29. L. Lima, S. Gheorghiu, J. Barros, M. Médard, A. Toledo, J. Vilela, "Secure Network Coding for Multi-Resolution Wireless Video Streaming", US Patent 8,571,214 B2, European Patent EP1173559.0
30. M. Kim, M. Médard, A. ParandehGheibi, "Coding Approach for a Robust and Flexible Communications Protocol", US Patent 8,780,693
31. M. Médard, M. Aikens, L. M. Colon, J. Hurley, M. Kilian, M. McShane, M. Warres, R.W. Scheifler, "Arrangements and Methods for Access to Stored Data", US Patent 8,812,671
32. N. Fawaz, M. Médard. "Peaky binning relaying scheme for wideband/low signal-to-noise ratio (SNR) wireless communications", US Patent 8,891,593
33. A. ParandehGheibi. M. Kim, M. Médard, "Advertisements as Keys for Streaming Protected Content", US Patent 8,918,902
34. U. Ferner, M. Médard, "Method And Apparatus To Reduce Access Time In A Data Storage Device Using Coded Seeking", US Patent 9,019,643
35. Haeupler, M. Médard, "Method And Apparatus For Performing Finite Memory Network Coding In An Arbitrary Network", US Patent 9,025,607
36. A. Hamedany, M. Warres, M. Médard, L. M. Colon, C. Losso, J. Hurley, "Resource Allocation and Modification Using Statistical Analysis", US Patent 9,066,141
37. G. Angelopoulos, M. Medard, A. P. Chandrakasan, "Partial packet recovery in wireless networks", US Patent 9,203,441
38. M. Medard; Muriel, Shi; Xiaomeng, S. M. Montpetit, S. Teerapittayanon, K. Fouli, "Wireless reliability architecture and methods using network coding", US Patent 9,185,529
39. M. Medard, A. Eryilmaz, A. Ozdaglar, Method for coding-based, delay-efficient data transmission, US Patent 9,160,440
40. L. M. Zeger, M. Medard, A. Rezaee, "Traffic backfilling via network coding in a multi-packet reception network", US Patent 9,143,274
41. L. M. Zeger, M. Medard, A. Rezaee, "Method and Apparatus For Reducing Feedback and Enhancing Message Dissemination Efficiency in a Multicast Network", U.S. Patent 9,369,255
42. F. du Pin Calmon, W. Zeng, M. Médard, "Method and Apparatus for Implementing Distributed Content Caching In A Content Delivery Network", U.S. Patent 9,369,541.
43. U. Ferner, M. Médard, "Coded Seeking Apparatus and Techniques for Data Retrieval", U.S. Patent 9,361,936
44. L. Zeger, M. Médard, A. Peters, "Method and apparatus for Efficient Transmission of Information to Multiple Nodes", US Patent Application 20130114611, notice of allowance received
45. G. Ciancaglini, M. Médard, J. D. Moores, M. R. Parquette, D. P. Proulx, "Method and Apparatus for Provisioning Connection Oriented, Quality of Service Capabilities and Services," US Patent application 20050089054
46. A. Hamedany, M. Warres, M. Médard, L. M. Colon, C. Losso, J. Hurley, "Resource Allocation and Modification Using Statistical Analysis", US Patent Application 20100185768

47. Rezaee, J. Cloud, L. Zeger and M. Médard, "Traffic Backfilling via Network Coding In A Multi-Packet Reception Network", US Patent Application 20130107764
48. F. du Pin Calmon, J. Cloud, W. Zeng, M. Médard, "Multipath Data Transfer Using Network Coding", US Patent Application 20130195106; European Patent Application 13742964.3
49. S. Feizi-Khankandi, V. Goyal, M. Medard, "Energy-Efficient Time-Stampless Adaptive Nonuniform Sampling", US Patent Application 20140184273
50. L. Lima, S. Gheorghiu, J. Barros, M. Medard, A. Lopez Toledo, J. Vilela, "Secure Network Coding for Multi-Resolution Wireless Transmission", US Patent Application 20140185803
51. M. Médard, X. Shi, M.-J. Montpetit, S. Teerapittayanon, K. Fouli, "Wireless Reliability Architecture and Methods Using Network-Coding", US Patent Application 20140269485
52. M. Médard, X. Shi, M.-J. Montpetit, S. Teerapittayanon, K. Fouli, "Wireless Reliability Architecture and Methods Using Network-Coding", US Patent Application 20140269503
53. M. Médard, X. Shi, M.-J. Montpetit, S. Teerapittayanon, K. Fouli, "Wireless Reliability Architecture and Methods Using Network-Coding", US Patent Application 20140269505
54. M. Médard, U. Ferner, T. Wang, "Network Coded Storage with Multi-Resolution Codes", US Patent Application 20140280395
55. F. du Pin Calmon, M. Médard, L. Zeger, M. Christiansen, K. Duffy, "Method and Apparatus for Secure Communication", US Patent Application 20160154970
56. L. Zeger, M. Médard, A. Randles, "Method and Apparatus for Packet Capture Using Preambles and Postambles", US Patent Application 20160157127
57. M. Médard, D. Shah, J.-K. Sundararajan, "ARQ for Network Coding", M.I.T. Case No. 13100
58. J. F. Cordeiro De Oliveira Barros, J. P. Da Silva Machado Garcia Vilela, M. Médard, L. M. Moya Praca De Araujo Lima "Systems and Methods for Providing Confidentiality in Network Coding", M.I.T. Case No. 13202
59. G. Angelopoulos, M. Médard, A. Chandrakasan, "An Alternative Approach to Hybrid ARQ Systems - Joint Channel and Network Coding", M.I.T. Case No. 15259
60. M. Christiansen, K. Duffy, F. du Pin Calmon, M. Médard, "Brute-Force Searching, the Typical Set and Guesswork", M.I.T. Case No. 16671J
61. H. Swaminathan, D.S. Lun, C. Grgicak, M. Médard, "Low-Temperature DNA Mixture Interpretation: Determining the number of contributors", M.I.T. Case No. 16949J
62. J. Cloud, L. Zeger and M. Médard, Joint Use Of Multi-Packet Reception And Network Coding For Performance Improvement, M.I.T. Case No 14624L
63. M. Médard, U. Ferner, T. Wang, "Network Coded Storage with Multi-Resolution Codes", European, Japanese, Korean, Chinese Patent Applications M.I.T. Case No. 16003
64. U. Ferner, M. Médard, "Method And Apparatus To Reduce Access Time In A Data Storage Device Using Coded Seeking", European, Japanese, Korean, Chinese Patent Applications M.I.T. Case No. 16012

## Educational Contributions of Muriel Médard

### 1. Teaching materials

- a) In 6.441, I developed in Latex an all new set of lecture handouts, completely re-designed the syllabus, developed a substantial set of supplementary readings of relevant research papers, organized by relevance to different topics and by difficulty, introduced a research project on major papers in the literature.
- b) In 6.263, in collaboration with Dina Katabi, I significantly revised the course, wrote new lecture handouts, in particular in the areas of the use of transforms in analyzing queuing systems, of switching theory, of rerouting, of wireless networks and coding (including network coding); introduced a research design project and reading of major papers in the area.
- c) In 6.989, I developed a new graduate course on network coding, with research projects from the students. Several of these projects evolved into publications.

### 2. Other educational contributions:

- a) Summer Professional Institute: co-instructor for Ini0S, Digital Communication Networks; significantly updated the curriculum. Co-instructor for 6.33S, Network Coding – created a new course with Dina Katabi.
- b) Developed a course on network coding in conjunction with the late Ralf Koetter of UIUC (later TUM), later expanded with Frank Fitzek of the University of Aalborg; the course was given at Centre for Wireless Communications at the University of Oulu, at the IEEE Global Telecommunications Conference (Globecom) in Dallas, at the International Symposium on Information Theory (ISIT) in Australia, at the International Workshop on Wireless and Ad Hoc Networks in New York, at the UCSD center for Information Theory and its Applications (ITA), at IFIP Networking in Atlanta, at the Workshop on Network Coding in Hong Kong, at the International Symposium on Personal, Indoor and Mobile Radio Communications in France, at Telecom Bretagne in France, at the European Wireless Conference in Aalborg, at ICC in Ottawa, Canada, as a Doctoral Course at the University of Modena in Italy, as a Doctoral Course at the University of Aalborg (three times), at ICC in Budapest, in Ottawa, in Australia, in London and at Digicosme (Supelec).
- c) I have supervised projects of undergraduates (UROPs), high school students and visiting graduate students, summarized as follows:
  - Chan, Serena, 6-A student at MIT Lincoln Laboratory, “Localization of Attacks in Optical Networks,” Summer 1997 and January 1998,
  - Lin, Alvin, “Computer Simulation of Algorithms for Creating Minimal weight Redundant Trees in Edge-Redundant Graphs”, project through the Research Science Institute, run by the Center for Excellence in Education, to encourage promising U.S. high school students to pursue careers in science and engineering, Summer 2000
  - Chan, Derrick, “Coding for ALOHA Systems,” 6.199 Advanced Undergraduate Project, Fall 2000
  - Divi, Vijay, “Heuristic Methods for Tree Selection,” UROP project, Spring 2001
  - Abdallah, Rami, “Error Probability in Wireless Channels,” project through the Research Science Institute, Summer 2001

## Educational Contributions of Muriel Médard

Frey, Claudio, “Optimal Spreading Bandwidth in Ultrawideband Channels,” project through the Research Science Institute, Summer 2001

Tang, Jie, “Cycles in Large Networks,” project through the Research Science Institute (**project was semi-finalist in the Siemens-Westinghouse competition**), Summer 2003

Ryu, Ho Seung (Paul), “Distribution of Node Degrees in Large Networks,” project through the Research Science Institute (**project was semi-finalist at the Siemens-Westinghouse Competition**), Summer 2003

Bdeir, Ayah, “SNR adaptation for PSAM systems,” undergraduate visiting from American University of Beirut, Summer 2003

Fink, Evan, “Random Multicast Network Coding,” UROP project, Summer 2003

Lee, Anna, “Rate-Splitting Implementation of Slepian-Wolf Source Coding,” UROP project, Summer, Fall 2003 and Spring 2004

Choute, Clifford, “Network Coding in Gossip Networks,” UROP project, Spring 2004

Lee, Hyunjoo (Jenny), “Network Coding with a Cost Criterion,” AUP, Spring 2004

Muñoz-Torres, Enrique A., “Cycles and Reliability in Large Random Graphs,” AUP, Spring 2004

Ahmed, Ebad, “Distributed Optimization for Multicast Network Coding,” UROP Summer 2004, Fall 2004, Spring and Summer, Fall 2005

Acedanski, Szymon, “How Good is Random Linear Coding Based Distributed Networked Storage?” project through the Research Science Institute, Summer 2004

Tan, Jianlong, “Network Coding for Security,” UROP Fall 2004, Spring 2005

Vehkaperä, Mikko, “A Throughput-Delay Trade-Off in Packetized Systems with Erasures,” visiting student from Oulu University, Fall 2004, Spring 2005

Miliou, Natalia visiting student from ETH Zurich, Summer, Fall 2005

Loy, Jermaine, “Energy Efficient Joint Source/Channel Coding”, visiting student from Technical University Munich, Fall 2005

Kim, Minji, UROP student, “Conflict Graphs for Network Coding,” Spring 2006

Kim, Wonsik, UROP student, “Evolutionary Methods for Network Coding,” Summer 2006

Lima, Luisa, “Network Coding for Security”, visiting student from University of Porto, Portugal, Fall 2006, Spring 2008, Spring 2009

Ming, Xiao, visiting student from Chalmers University, Sweden, “Cross-layer Design of Rateless Random Network Codes for Delay Optimization” and “A binary coding approach for combination networks and general erasure networks”, Fall 2006-Spring 2007

Traskov, Danail, “Scheduling for Network-Coded Multicast”, and “Wireless Inter-Session Network Coding - An Approach Using Virtual Multicasts”, University of Illinois Urbana-Champaign and Technical University of Munich, Summer 2007

Singh, Jaspreet, “Functional Compression”, University of California Santa Barbara, Summer 2007

Fawaz, Nadia, “On the Non-Coherent Wideband Multipath Fading Relay Channel”, Supelec/Eurecom, Fall 2007

## Educational Contributions of Muriel Médard

da Silva Machado Garcia Vilela, Joao Paulo “An Information-Theoretic Cryptanalysis of Network Coding – is Protecting the Code Enough?”, University of Porto, Spring 2008

Thakur, Mohit, “What is the optimal relay position for low-SNR networks?”, Technical University Munich, Fall 2008, Spring 2010

Soussi, Khaled, “Evaluation of a Wireless Video Transmission using Network Coding”, Technical University Munich, Fall 2008

Pedersen, Morten, “Network Coding in Mobile Wireless Networks”, Aalborg University, Spring 2009

Heide, Janus, “Network Coding in Mobile Wireless Networks”, Aalborg University, Spring 2009

Chang, Christopher, “Issues in Peer-to-Peer Networking: a Coding Optimization Approach”, Caltech, Summer 2009

Gorantla, Siva Kumar, “Network Coding with Channels”, University of Illinois Urbana-Champaign, Summer 2009

Mendes Alves da Costa, Rui Filipe, “Secure Network Coding”, University of Porto, Summer 2009

Fouli, Kerim, “Network Coding in Next-Generation Passive Optical Networks (NG-PONs)”, INRS, Spring 2010

Casse, Jerome, “Only the source's and sink's neighborhood matters: convergence results for unicast and multicast connections on random graphs and hypergraphs”, ENS, Spring-Summer 2010

Keller, Lorenzo, “Functional Compression”, EPFL, Summer 2010

Souillard-Mandar, William, UROP student, “Downloading a File Through Two Channels: Design and Analysis of Association Policies”, Summer-Fall 2010

Pezzolo Ciacaglia, Giuliano, UROP student, “Systematic Network Coding for Time Division Duplexing with the aid of a Relay”, Summer-Fall 2010, “Network Coding with the aid of a Relay”, Fall 2011, Spring 2012

Sayan, Sila, UROP student, “TCP with Network Coding”, Summer-Fall 2010

Graybill, Wesley, UROP student, “Galois Field Techniques for Network Coding”, Fall 2009, Spring 2010

Biktimirova, Aysylu, UROP student, “Network Combining with Network Coding”, Fall 2010

Zhang, Amy, UROP student “Functional Compression for Cloud Computing”, Spring 2011

Deny, Liz, UAP student “Graph Coloring for Functional Compression”, Spring 2011

Rambeloarison, Muriel, UAP student “Adaptive Sampling”, Spring 2011

## Educational Contributions of Muriel Médard

Kuo, Emily, UROP student, “Network Coding Based DRM”, Summer 2011, Fall 2011

Almeida, Joao, “High SNR Physical Layer Security with Lattice Codes” University of Porto, Fall 2011

Guo, Wangmei, “Localized Dimension Growth: A Convolutional Random Network Coding Approach to Managing Memory and Decoding Delay”, X’ian University, Fall 2010- Fall 2011

Du, Jinfeng, “Lower Bounding Models for Wireless Networks”, KTH, Fall 2011

Lincoln, Andrea, UROP student, “Graph Declawing for Wireless Network Coded Scheduling”, Summer 2011 through Spring 2012

Voloch de Carvalho, Luis, UROP student, “Energy Efficient Cloud Computing Systems”, started Spring 2011, Fall 2011, Spring 2012

Wang, Szu-Po, UROP student, “Implementation of a Network Coded System on Software Defined Radios”, Fall 2011, Spring 2012

Ivan Sergeev, UROP student, UAP student “Network Coding Enabled MAC Protocol Development and Simulation for Next-Generation Local and Access Networks”, Fall 2011, Spring 2012 **Winner of the Licklider Award**

Simmons, Jamie, UROP student, UAP student, “MIT-UCLA Reliability of Communication Links”, Fall 2011, Spring 2012

Muco, Manushaqe, UROP student, “Fundamental Limits of Network Coding for Non-multicast Communications”, Spring 2012

Karafillis, Pavlina, high school intern, “An Algorithm for Improving Sliding Window Network Coding in TCP”, Summer 2012 (co-supervised with Kerim Fouli and Ali ParandehGheibi)

Josephson, Colleen, UROP student, “A Software-Defined Radio Implementation of a Cross-layer Network Coding Scheme”, Spring, Fall 2012, Spring 2013 (project became a Super UROP project, co-supervised with Georgios Angelopoulos)

Ponde de Oliveira Pinto, Henrique, UAP student, “Improving on the Insufficiency of Linear Network Coding”, Spring 2013, (co-supervised with Viveck Cadambe and Moshe Schwartz)

Pedroso, Marco Antonio L. UROP student, “A Green Touch to Cloud Computing”, Spring, Fall 2012, Spring 2013 (co-supervised with Ulric Ferner)

Chen, Zonghao, UROP student, “Outer bounds for network capacity”, Spring 2013 (co-supervised with Viveck Cadambe)

Long, Qiang, UROP student, “Toward Sustainable Networking: Network Coded Storage within Data Centers”, Spring 2013, (co-supervised with Ulric Ferner)



## Educational Contributions of Muriel Médard

Lincoln, Andrea, UROP student, “Sending Single messages in Wired or Delay Tolerant Networks using Coding”, Summer 2013 (co-supervised with Keren Censor-Hillel and Nancy Lynch)

Wu, Yonglin, UROP student, “DNA fingerprinting in forensic genetics by signal processing and inference technique”, Summer 2013, Fall 2013, Spring 2014 (co-supervised with Ullrich Mönich and Viveck Cadambe)

Wang, Qiwen, “AFine Compression Code of Worst-case/Markov Insertion/Deletion Processes Without Editing Logs”, Chinese University of Hong Kong, Spring-Summer 2013

Johansen, Lars, “Performance enhancements in WiFi using Network Coding”, NTNU, Summer-Fall 2013

Harris, Helena, “Characteristics of Stutter in Allele Analysis”, project through the Research Science Institute, Summer 2013 (supervised by Ullrich Mönich)

De Caro, Jon Luca, “Network Coding over Structured Graphs”, project through the Research Science Institute, Summer 2013 (supervised by Viveck Cadambe)

Jay, Maya, “Storage-communication Tradeoffs”, high school intern, Summer 2013 (supervised by Viveck Cadambe)

Hansen, Jonas, “Network Coding with Openflow”, Aalborg University, Fall 2013

Krisglund, Jeppe, “Network Coding with Openflow”, Aalborg University, Fall 2013

Long, Qian, UAP student, “Building a Test Bed for Network Coded Storage for Energy Reduction In Data Centers”, Fall 2013 (supervised by Ulric Ferner)

Menshova, Marie, “Uniformity under Compression and MDS Coding for List-source Coding and Guesswork”, Spring 2014, Fall 2014, Spring 2015 (supervised by Flavio du Pin Calmon)

Sweeting, Naomi, “Heuristics and Algorithms on RLNC Aided Network Reduction”, project through the Research Science Institute, Summer 2014 (supervised by Jinfeng Du)

Lin, Jessica, “Interplay of Network and Channel Coding in Delay Constrained Wireless Transmission”, high school intern, Summer 2014 (supervised by Jinfeng Du)

Ontiveros, Victoria, “Some Optimization-Based Linear Network Coding Approaches for General Connections”, high school intern, Summer 2014 (supervised by Ying Cui)

Pandhya, Dhairat, “Some Optimization-Based Linear Network Coding Approaches for General Connections”, project through the Research Science Institute, Summer 2014 (supervised by Ying Cui) (winner of a top 5 RSI award) (Semi-Finalist in the Siemens Competition) (Finalist in the Intel Competition)

Chres Sørensen, “Sparse Network Coding”, Aalborg University”, Aalborg University, Fall 2014,

## Educational Contributions of Muriel Médard

Haiyan Xin, “Analog Network Coding”, Chinese University of Hong Kong, Fall 2014

‘Etuate Cocker. “Coded TCP with Satellites”, University of Auckland, Fall 2014.

Sayed Tasnim, “Optimization Techniques for General Connections Using Network Coding”, Super UROP, Fall 2014-Spring 2015.

Felipe Radovitzky, “Password Statistics”, high school intern, Summer 2015 (supervised by Ahmad Beirami)

Erik Uhlmann, “Password Statistics”, high school intern, Summer 2015 (supervised by Ahmad Beirami).

## Publications of Muriel Médard

### 1. Books

M. Médard and Sprintson, A. (editors), "Network Coding: Fundamentals and Applications", AP, Elsevier

### 2. Papers in Refereed Journals:

1. M. Médard, Marquis, D., Barry, R.A., and Finn, S.G., "Security Issues in All-Optical Networks," *IEEE Network Magazine*, Vol. 11, Issue 3, pp. 42-48, May 1997.
2. M. Médard, Chinn, S.R., Saengudomlert, P., "Attack Detection in All-Optical Networks," in *Trends in Optics and Photonics (TOPS)-Vol. 20 -Optical Networks and their Applications*, Barry, R.A., editor, published by the Optical Society of America, pp. 227-232, 1998. \*\*
3. S.G. Finn, Médard, M., Barry, R.A., "A New Algorithm for Bi-directional Link Self-Healing for Arbitrary Redundant Networks," in *Trends in Optics and Photonics (TOPS)-Vol. 20-Optical Networks and their Applications*, Barry, R.A., editor, published by the Optical Society of America, pp. 222-226, 1998.
4. M. Médard, Barry, R.A., Finn, S.G., Gallager, R.G., "Automatic Protection Switching for Multicasting in Optical Mesh Networks," in *Trends in Optics and Photonics (TOPS)-Vol. 20-Optical Networks and their Applications*, Barry, R.A., editor, published by the Optical Society of America, pp. 216-221, 1998.
5. M. Médard, Finn, S.G., Barry, R.A., Gallager, R.G., "Redundant Trees for Preplanned Recovery in Arbitrary Vertex-Redundant or Edge-Redundant Graphs," *IEEE/ACM Transactions on Networks*, Vol. 7, Issue 5, pp. 641 -652, October 1999.
6. M. Médard, "The Effect Upon Channel Capacity in Wireless Communications of Perfect and Imperfect Knowledge of the Channel," *IEEE Transactions on Information Theory*, Vol. 46, Issue 3, pp. 935-946, May 2000. **(Winner of the IEEE 2002 Leon Kirchmayer Prize Paper Award)**
7. S. Lumetta, Médard, M., and Tseng, Y., "Capacity Versus Robustness: A Tradeoff for Link Restoration in Mesh Networks," *IEEE Journal of Lightwave Technology*, Vol. 18, Issue 12, pp. 1765 -1775, March 2001. \*\*
8. M. Médard, Chinn, S.R., and Saengudomlert, P., "Node Wrappers for QoS Monitoring in Transparent Optical Nodes," *Journal of High Speed Networks* (yearly publication), IOS Press, pp. 247-268, 2001. \*\*
9. M. Médard and Lumetta, S.S., "Architectural Issues for Robust Optical Access," *IEEE Communications Magazine*, Vol. 39, Issue 7, pp. 116-220, July 2001.
10. M. Médard, Barry, R.A., Finn, S.G., He, W., Lumetta, S.S., "Generalized Loop-back Recovery in Optical Mesh Networks," *IEEE/ACM Transactions on Networking*, Vol. 10, Issue 1, pp. 153-164, February 2002. \*\*
11. M. Médard and Gallager, R.G., "Bandwidth Scaling for Fading Multipath Channels," *IEEE Transactions on Information Theory*, Vol. 48, Issue 4, pp. 840 -852, April 2002.
12. P. Saengudomlert and Médard, M., "Guaranteeing BER in Transparent Optical Networks Using OOK Signaling," *IEEE Journal on Selected Areas in Communications*, Vol. 20, Issue 4, pp. 786-799, May 2002. \*\*
13. M. Médard, Lumetta, S.S., and Li, L., "A Network Management Architecture for Robust Packet Routing in Mesh Optical Access Networks," invited paper in *IEEE Journal on Selected Areas in Communications*, Vol. 20, Issue 4, pp. 822-833, May 2002.

## Publications of Muriel Médard

14. R. Koetter and Médard, M., "Beyond Routing: An Algebraic Approach to Network Coding," *IEEE/ACM Transactions on Networking*, Vol. 11, Issue 5, pp. 782-796, October 2003. (selected as one of the outstanding papers from INFOCOM for transfer to IEEE/ACM Transactions on Networking)
15. M. Jinno, Leonberger, F.J., Médard, M., Ransom, N., and Von Lehmen, A., "Guest Editorial: Optical Networks," *IEEE Journal of Lightwave Technology*, Vol. 21, Issue 11, pp. 2452-2454, November 2003.
16. M. Médard, "Channel Uncertainty in Communications," invited paper in *IEEE Information Theory Society Newsletter*, starting on page 1 (4 pages), June 2003.
17. M. Médard, Huang, J., Goldsmith, A., Meyn, S., and Coleman, T.P., "Capacity of Time-slotted ALOHA Packetized Multiple-Access Systems over the AWGN Channel," *IEEE Transactions on Wireless Communications*, Vol. 3, Issue 2, pp. 486-499, March 2004. \*\*
18. D.S. Lun, Médard, M., and Abou-Fayçal, I.C., "On the Performance of Peaky Capacity-achieving Signaling on Multipath Fading Channels," *IEEE Transactions on Communications*, Vol. 52, Issue 6, pp. 931-938, June 2004. \*\*
19. T.P. Coleman and Médard, M., "A Distributed Scheme for Achieving Energy-Delay Tradeoffs with Multiple Service Classes over a Dynamically Varying Network," *IEEE Journal on Selected Areas in Communications-Special Issue on Advanced Mobility Management and QoS Protocols for Wireless Internet*, Vol. 22, Issue 5, pp. 929-941, June 2004. \*\*
20. M. Effros, Médard, M., Ho, T., Ray, S., Karger, D., Koetter, R., and Hassibi, B., "Linear Network Codes: A Unified Framework for Source, Channel, and Network Coding," *Advances in Network Information Theory, DIMACS Series in Discrete Mathematics and Theoretical Computer Science*, Vol. 66, pp. 197-216, Editors: Gupta et al., 2004. \*\*
21. G.E. Weichenberg, Chan, V.W.S., and Médard, M., "High-Reliability Topological Architectures for Networks under Stress," *IEEE Journal on Selected Areas in Communications: Optical Communications and Networking Series*, Vol. 22, Issue 9, pp. 1830-1845, November 2004. \*\*
22. T. Ho, Médard M., and Koetter, R., "An Information Theoretic View of Network Management," *IEEE Transactions on Information Theory*, Vol. 51, Issue 4, pp. 1295-1312, April 2005. \*\*
23. I. Abou-Fayçal, Médard, M., and Madhow, U., "Binary Adaptive Coded Pilot Symbol Assisted Modulation over Rayleigh Fading Channels without Feedback," *IEEE Transactions on Communications*, Vol. 53, Issue 6, pp. 1036-1046, June 2005.
24. D. Karger and Médard, M., "Toward Using the Network as a Switch," *IEEE Journal on Selected Areas in Communications: Optical Communications and Networking Series*, Vol. 23, Issue 8, pp.1533-1541, August 2005.
25. C. Luo, Médard, M., and Zheng, L., "On Achieving Wideband Capacity Using Multitone FSK," *IEEE Journal on Selected Areas in Communications (JSAC)-Special Issue on Differential and Noncoherent Wireless Communications*, Vol. 23, Issue 9, pp. 1830-1838, September 2005. \*\*
26. D.S. Lun, Ratnakar, N., Médard, M., Koetter, R., Karger, D.R., Ho, T., Ahmed, E., and Zhao, F., "Minimum-Cost Multicast over Coded Packet Networks," *IEEE Transactions on Information Theory*, Vol. 52, Issue 6, pp. 2608-2623, June 2006. \*\*
27. S. Deb, Médard, M., and Choute, C., "Algebraic Gossip: A Network Coding Approach to Optimal Multiple Rumor Mongering," *IEEE Transactions on Information Theory*, Vol. 52, Issue 6, pp. 2486-2507, June 2006. \*\*

## Publications of Muriel Médard

28. N. Cai, Chiang, N.M., Effros, M., Koetter, R., Médard, M., Prabhakar, B., Srikant, R., Towsley, D., and Yeung, R.W., "Introduction to the Special Issue on Networking and Information Theory," *IEEE Transactions on Information Theory*, Vol. 52, Issue 6, pp. 2285-2288, June 2006.
29. M. Médard and Srikant, R., "Capacity of Nearly-decomposable Markovian Fading Channels Under Asymmetric Receiver-sender Side Information," *IEEE Transactions on Information Theory*, Vol. 52, Issue 7, pp. 3052-3062, July 2006.
30. T.P. Coleman, Lee, A.H., Médard, M., and Effros, M., "Low-Complexity Approaches to Slepian-Wolf Near-Lossless Distributed Data Compression," *IEEE Transactions on Information Theory*, Vol. 52, Issue 8, pp. 3546-3561, August 2006. \*\*
31. J. Huang, Meyn, S.P., and Médard, M., "Error Exponents for Channel Coding and Signal Constellation Design," *IEEE Journal on Selected Areas in Communications (JSAC)-Special Issue on Nonlinear Optimization of Communication Systems*, Vol. 24, Issue 8, pp.1647-1661, August 2006.
32. T. Ho, Médard, M., Koetter, R., Karger, D.R., Effros, M., Shi, J., and Leong, B., "A Random Linear Network Coding Approach to Multicast," *IEEE Transactions on Information Theory*, Vol. 52, Issue 10, pp. 4413-4430, October 2006. \*\* (**Winner of the 2009 of the IEEE Communication Society and Information Theory Society joint Paper Award**)
33. J.-S. Park, Lun, D.S., Yi, Y., Gerla, M., and Médard, M., "CodeCast: A Network Coding Based Ad Hoc Multicast Protocol," *IEEE Wireless Communications Magazine*, Vol. 13, Issue 5, pp. 76-81, October 2006. \*\*
34. A.J. Goldsmith and Médard, M., "Capacity of Time-Varying Channels With Causal Channel Side Information," *IEEE Transactions on Information Theory*, Vol. 53, Issue 13, pp. 881-899, March 2007.
35. L. Zheng, Tse, D.N.C., and Médard, M., "Channel Coherence in the Low-SNR Regime," *IEEE Transactions on Information Theory*, Vol. 53, Issue 13, pp. 976-997, March 2007.
36. D. S. Lun, Jennings, L.D., Koetter, R. Licht, S., and Médard, M., "An Information-Based Computational Technique for Estimation of Chromatographic Peak Purity", *Journal of Chemical Information and Modeling*, Volume 47, Issue 5, pp. 1973 - 1978
37. S. Ray, Médard, M., and Zheng, L., "On Non-coherent MIMO Channels in the Wideband Regime: Capacity and Reliability," *IEEE Transactions on Information Theory*, Volume 53, Issue 6, June 2007, pp. 1983 – 2009. \*\*
38. M. Effros, Koetter, R., and Médard, M., "Breaking Network Logjams," *Scientific American*, Vol. 296, Number 6, pp. 78-85, June 2007.
39. G. Weichenberg, Chan, V., and Médard, M., "On the Capacity of Optical Networks: A Framework for Comparing Different Transport Architectures," *IEEE Journal on Selected Areas in Communications: Optical Communications and Networking Series*, Volume 25, Issue 6, August 2007, pp. 84 – 101. \*\*
40. J.-K. Sundararajan, Deb, S., and Médard, M., "Extending the Birkhoff-von Neumann Switching Strategy for Multicast-On the use of Optical Splitting in Switches," *IEEE Journal on Selected Areas in Communications: Optical Communications and Networking Series*, Volume 25, Issue 6, August 2007, pp. 36-50. \*\*
41. D. S. Lun, Médard, M., Koetter, R., Effros, M., "On Coding for Reliable Communication over Packet Networks", *Physical Communication*, Volume 1, Issue 1, March 2008, pp. 3-20

42. S. Jaggi, Langberg M., Katti S., Ho T., Katabi D., Médard, M., and Effros, E., “Resilient Network Coding in the Presence of Byzantine Adversaries”, *Special Issue on Information-theoretic Security of the IEEE Transactions on Information Theory*, Volume 54, Issue 6, June 2008, pp. 2596 - 2603
43. T. Ho, Leong, B., Koetter, R., Médard, M., and Effros, E., “Byzantine Modification Detection in Multicast Networks with Random Network Coding”, *Special Issue on Information-theoretic Security of the IEEE Transactions on Information Theory*, Volume 54, Issue 6, June 2008, pp. 2798-2803
44. S. Katti, Rahul, H., Hu, W. , Katabi, D., Médard, M., and Crowcroft, J., “XORs in the Air: Practical Wireless Network Coding”, *IEEE/ACM Transactions on Networking*, Volume 16, Issue 3, June 2008, pp. 497 – 510 (**winner of the 2009 William R. Bennett Prize in Network Communications**)
45. S. Jing, Zheng, L., and Médard, M., “On Training with Feedback in Wideband Channels”, *IEEE Journal on Selected Areas in Communications: Special Issue on Limited Feedback*, Volume 26, Issue 8, October 2008, pp:1607 - 1614\*\*
46. L. D. Jennings, Lun, D. S., Médard, M., and Licht, S. “ClpP Hydrolyzes a Protein Substrate Processively and Independently with Respect to the ClpA ATPase: Mechanistic Studies of ATP-Independent Processive Proteolysis”, *Biochemistry*, 47(44):11536-11546, November 2008
47. A. Eryilmaz, Ozdaglar, A., and Médard, M., “On the Delay and Throughput Gains of Coding in Unreliable Networks”, *IEEE Transactions on Information Theory*, Volume 54, Issue 12, December 2008, pp:5511- 5524
48. D. Lucani, Stojanovic, M., and Médard, M., “Channel Models and Network Coding based Lower Bound to Transmission Power for Multicast”, *IEEE Journal on Selected Areas in Communications: Special Issue on Underwater Acoustic Networks*, Volume 26, Issue 9, December 2008, pp:1708 -1719\*\*
49. P. Youssef-Massaad, Zheng, L., and Médard, M., “Bursty Transmission and Glue Pouring: on Wireless Channels with Overhead Costs”, *IEEE Transactions on Wireless Communications*, Volume 7, Issue 12, Part 2, December 2008, pp:5188 - 5194 \*\*
50. G. Weichenberg, Chan, V., and Médard, M., “Design and Analysis of Optical Flow Switched Networks”, *IEEE/OSA Journal of Optical Communications and Optical Networking*, Volume 1, Issue 3, August 2009, pp:B81 - B97\*\*
51. W. Chen, Traskov, D., Heindlmaier, M., Médard, M., Meyn, S., and Ozdaglar, A., “Coding and Control for Communication Networks”, *Queueing Systems: 100 Years of Queueing - the Erlang Centennial*, Vol. 63, Nos 1-4, December 2009, pp. 195-216
52. X. Shi. Lun, D.S., Médard, M., Kötter, R., Meldrim, J.C., Barry, A.J., “Joint Base-Calling of Two DNA Sequences With Factor Graphs,” *IEEE Transactions on Information Theory*, vol.56, no.2, pp.724-733, Feb. 2010\*\*
53. L. Lima, Gheorghiu, S., Barros, J., Médard, M., and Toledo, A. T. “Secure Network Coding for Multi-Resolution Wireless Video Streaming,” *IEEE Journal of Selected Areas in Communications*, vol. 28, Issue 3, March 2010 , pp. 377-388
54. M. Kim, Lima, L., Zhao, F., Barros, J, Médard, M., Koetter, R., Kalker, T. and Han, K., “On Counteracting Byzantine Attacks in Network Coded Peer-to-Peer Networks”, *IEEE Journal on Selected Areas in Communications: Special Issue on Mission-Critical Infrastructure*, vol 28, Issue 5, May 2010, pp. 692-702\*\*

## Publications of Muriel Médard

55. G. Durrett, Médard, M., and O'Reilly U.-M., "A Genetic Algorithm to Minimize Chromatic Entropy", to be published in: P. Cowling and P. Merz (Eds.): *EvoCOP 2010*, LNCS 6022, pp. 59--70. Springer, Heidelberg (2010)
56. V. Doshi, Shah, D., Médard, M., and Effros, M., "Functional Compression Through Graph Coloring", *IEEE Transactions on Information Theory*, Vol. 56, No. 8, August 2010, pp. 3901-3917\*\*
57. A. ParandehGheibi, Eryilmaz, A., Ozdaglar, A., and Médard, M., "On Resource Allocation in Fading Multiple Access Channels -- An Efficient Approximate Projection Approach", *IEEE Transactions on Information Theory*, Vol. 56, No. 9, September 2010, pp. 4417-4437\*\*
58. M. Kim, Sundararajan, J.K, Médard, M., Eryilmaz, A., Koetter, R., "Network Coding in a Multicast Switch", *IEEE Transactions on Information Theory*, vol. 57, no. 1, January 2011, pp. 436-460\*\*
59. M. Effros, Forney, G. D., Kschischang, F., Médard, M., Singer, A. and Vardy, A., "The Scientific Legacy of Ralf Koetter", *IEEE Transactions on Information Theory*, vol. 57, no. 2, February 2011, pp. 589-592
60. R. Kötter, Effros, M., Médard, M., "On a Theory of Network Equivalence", *IEEE Transactions on Information Theory*, vol. 57, no. 2, February 2011, pp. 972-995
61. S. Huang, Ramamoorthy, A. Médard, M., "Minimum Cost Mirror Sites Using Network Coding: Replication vs. Coding at the Source Nodes", *IEEE Transactions on Information Theory*, vol. 57, no. 2, February 2011, pp. 1080-1091.
62. J. K. Sundararajan, Shah, D., Médard, M., Jakubczak, S., Mitzenmacher, M. and Barros, J., "Network Coding Meets TCP: Theory and Implementation", **invited paper**, *Proceedings of the IEEE*, March 2011, pp. 490 – 512\*\*
63. A. Goldsmith, Effros, M., Koetter, R., Médard, M., Ozdaglar, A. and Zheng, L., "Beyond Shannon: The Quest for Fundamental Performance Limits of Wireless Ad Hoc Networks", *IEEE Communications Magazine*, vol. 49, no. 5, May 2011, pp. 195-205
64. J. M. Walsh, Weber, S., De Oliveira, J. C., Eryilmaz, A., and Médard, M., "Guest Editorial", *IEEE Journal on Selected Areas in Communications*, special issue on "Trading rate for Delay at the Transport and Application Layers", vol. 29, no. 5, May 2011, pp. 913-915
65. A. ParandehGheibi, Médard, M., Ozdaglar, A., and Shakkottai, S., "Avoiding Interruptions—A QoE Reliability Function for Streaming Media Applications", *IEEE Journal on Selected Areas in Communications*, special issue on "Trading rate for Delay at the Transport and Application Layers", vol. 29, no. 5, May 2011, pp. 1064-1074\*\*
66. M. Xiao, Médard, M., and Aulin, T., "Cross-Layer Design of Rateless Random Codes for Delay Optimization", *IEEE Transactions on Communications*, vol. 59, no. 12, December 2011, pp. 3311 - 3322
67. S. Ray, Médard, M., and Zheng, L., "Fiber Aided Network Wireless Architecture", *IEEE Journal of Selected Areas in Communications*, vol. 29, No. 6, June 2011, pp. 1284-1294\*\*
68. K. Fouli, Maier, M., and Médard, M., "Network Coding in Next-Generation Passive Optical Networks", *IEEE Communications Magazine*, September 2011, pp. 38-46
69. M-J. Montpetit, Médard, M., Barros, J., and Fitzek, F., "Content Dissemination And Protection In Socially Consumed Video: A Network Coding Approach", *Multimedia Communications Technical Committee of the IEEE Communications Society E-Letter*, October 2011

70. M. Kim, Médard, M., and Barros, J., “Algebraic Watchdog: Mitigating Misbehavior in Wireless Network Coding”, *IEEE Journal of Selected Areas in Communications*, vol. 29, no. 10, December 2011 \*\*
71. J. Cloud, Zeger, L., and Médard, M., “MAC Centered Cooperation - Synergistic Design of Network Coding, Multi-Packet Reception, and Improved Fairness to Increase Network Throughput”, *IEEE Journal of Selected Areas in Communication*, vol. 30, no. 2, February 2012, pp. 341 - 349\*\*
72. I. Maric, Goldsmith, A., and Médard, M., “Multihop Analog Network Coding via Amplify-and-Forward: The High SNR Regime”, *IEEE Transactions on Information Theory*, vol. 58, no. 2, February 2012, pp. 793 – 803
73. T. S. El-Bawab, Esfandiari, M., Rouskas, G., Jayasumana, A., Kincaid, M., Effenberger, F., Kazovsky, L., Médard, M., Frost, V., and Baniewicz, P., “Commentary: Toward specialized undergraduate telecommunication engineering education in the US”, *IEEE Communications Magazine*, vol. 50, no. 9, September 2012, pp. 14-16
74. D. Lucani, Médard, M., and Stojanovic, M., “On Coding for Delay - Network Coding for Time Division Duplexing”, *IEEE Transactions on Information Theory*, vol. 58, no. 4, April 2012, pp. 2330 - 2348\*\*
75. D. Traskov, Heindlmaier, M., Médard, M., and Kötter, R., “Scheduling for Network Coded Multicast”, *IEEE/ACM Transactions on Networking*, vol. 20, no. 5, May 2012, pp. 1479 – 1488
76. M. J. Montpetit and Médard, M., “Social Television: Enabling Technologies and Architectures”, **invited paper**, *Proceedings of the IEEE, 100<sup>th</sup> Anniversary Issue*, vol. 100, May 2012, pp. 1395-1399
77. A. Rezaee, du Pin Calmon, F., Zeger, L., and Médard, M., “Speeding Multicast by Acknowledgment Reduction Technique (SMART) Enabling Robustness of QoE to the Number of Users”, *IEEE Journal of Selected Areas in Communication*, vol. 30, no. 7, August 2012, pp. 1270-1280 \*\*
78. S. Feizi, Goyal, V.K and Médard, M., “Time-Stampless Adaptive Nonuniform Sampling for Stochastic Signals”, *IEEE Transactions on Signal Processing*, vol. 60, no. 10, October 2012, pp. 5440 – 5450\*\*
79. W. Y. Shin, Lucani, D., Médard, M., Stojanovic, M., Tarokh, V., “On the Effects of Frequency Scaling over Capacity Scaling in Underwater Networks—Part I: Extended Network Model,” *Wireless Personal Communications*, Springer, November 2012
80. P.F. Oliveira, Lima, L., Vinhoza, T. T. V., Barros, J and Médard, M., “Coding for Trusted Storage in Networks”, *IEEE Transactions on Information Forensics and Security*, vol. 7, no. 6, December 2012, pp. 1890 – 1899
81. W. Y. Shin, Lucani, D., Médard, M., Stojanovic, M., Tarokh, V., “On the Effects of Frequency Scaling over Capacity Scaling in Underwater Networks— Part II: Dense Network Model,” *Wireless Personal Communications*, Springer
82. P.R. Kumar, Kushilevitz, E. Manjunath, D., Médard, M., Orlitsky, A., Srikant, R. “Guest Editorial: In-Network Computation: Exploring the Fundamental Limits”, *IEEE Journal on Selected Areas in Communications*, Vol. 31, No. 4, April 2013, pp. 617 - 619
83. S. Feizi, Marbach, D., Médard, M. and Kellis, M., “Network Deconvolution as a General Method to Distinguish Direct Dependencies in Networks”, *Nature Biotechnology*, July 2013\*\*



## Publications of Muriel Médard

84. J. Du, Xiao, M., Skoglund, M., and Médard, M., “Wireless Multicast Relay Networks with Limited-Rate Source-Conferencing”, *IEEE Journal of Selected Areas in Communication*, Vol. 31, No. 8, August 2013
85. X. Shi, Médard, M. and Lucani, D., “Whether and Where to Code in the Wireless Relay Channel”, *IEEE Journal of Selected Areas in Communication*, Vol. 31, No. 8, August 2013\*\*
86. D. Haccoun, Médard, M., Soljanin, E., Yeung, R.W., “Introduction to the Special Issue on Network Coding and its Applications to Wireless Communications”, *Physical Communication*, 6: 2-3, 2013
87. D. Lucani, Médard, M. and Stojanovic, M., “Scaling Laws for Underwater Networks”, *Internet Mathematics* 9 (2-3): 241-264, 2013\*\*
88. W. Guo, Shi, X., Cai, N., and Médard, M., “Localized Dimension Growth: A Convolutional Random Network Coding Approach to Managing Memory and Decoding Delay”, *IEEE Transactions on Communications*, vol. 61, no. 9, September 2013, pp. 3894-3905\*\*
89. F. Zhao, Médard, M., Ozdaglar, A., Lun, D.S., “Convergence Study of Decentralized Min-cost Subgraph Algorithms for Multicast in Coded Networks”, *IEEE Transactions on Information Theory*, vol. 60, no. 1, January 2014, pp. 410-421\*\*
90. X. Chen, Engelmann, A., Jukan, A., and Médard, M., “Linear Network Coding Reduces Buffering in High-Speed Ethernet Parallel Transmission Systems”, *IEEE Communications Letters*, vol. 18, no. 4, April 2014, pp. 636-639
91. M. Kim, Klein, T., Soljanin, E., Barros, J., and Médard, M., “Modeling Network Coded TCP: Analysis of Throughput and Energy Cost”, *Mobile Networks and Applications* (556) Springer, vol. 19, no. 6, June 2014, pp. 790-803\*\*
92. R. Kötter, Effros, M., and Médard, M., “A Theory of Network Equivalence -- Part II: Multiterminal Channels”, *IEEE Transactions on Information Theory*, vol. 60, no. 7, July 2014, pp. 3709 – 3732
93. M. Médard, Fitzek, F., Montpetit, M.-J., and Rosenberg, C., “Network Coding Mythbusting: Why It Is Not About Butterflies Anymore”, *IEEE Communications Magazine*, Vol. 62, no. 7, July 2014, pp. 177 - 183
94. E. Erez, Kim, M., Xu, Y., Yeh, E.M., and Médard, M., “Deterministic Network Model Revisited: An Algebraic Network Coding Approach”, *IEEE Transactions on Information Theory*, vol. 60, no. 8, August 2014, pp. 4867 - 4879\*\*
95. S. Feizi, Angelopoulos, G., Goyal, V. K., and Médard, M., “Backward Adaptation for Power Efficient Sampling”, *IEEE Transactions on Signal Processing*, vol. 62, no. 16, August 2014, pp. 4327 - 4338 \*\*
96. S. Feizi, and Médard, M., “On Network Functional Compression”, *Transactions on Information Theory*, vol. 60, no. 9, September 2014, pp. 5387 - 5401\*\*
97. H. Swaminathan, Grgicak, C. M., Médard, M., Lun, D.S., “NOCIt: A computational method to infer the number of contributors to DNA samples analyzed by STR genotyping”, *Forensic Science International: Genetics*, 16 C, November 2014
98. A. Fu, Sadeghi, P., and Médard, M., “Dynamic Rate Adaptation for Improved Throughput and Delay in Wireless Network Coded Broadcast”, *IEEE/ACM Transactions on Networking*, vol. 22, No. 6, December 2014, pp. 1715 – 1728

## Publications of Muriel Médard

99. B. Haeupler, Cohen, A., Avin, C., and Médard, M., “Network Coding Based Information Spreading in Dynamic Networks with Correlated Data”, *IEEE Journal of Selected Areas in Communication*, vol. 33, no.2, February 2015, pp. 213-224\*\*
  100. U. Ferner, and Médard, M., “Coded-seeking: a simple HDD speed-up concept”, *IEEE Communications Letters*, vol. 19, no. 2, February 2015, pp. 139-142 \*\*
  101. U. J. Mönich, Duffy, K., Médard, M., Cadambe, V., Alfonse, L.E., and Grgicak, C., “Probabilistic Characterisation of Baseline Noise in STR Profiles”, *Forensic Science International: Genetics*, July 2015, pp. 107-122
  102. J. Krigslund, Hansen, J., Lucani, D.E., Fitzek, F.H.P, and Médard, M., “Network Coded Software Defined Networking: Enabling 5G Transmission and Storage Networks”, *IEEE Communications Magazine*, vol.53, no.9, September 2015, pp.100-107
  103. M. Christiansen, Duffy, K., du Pin Calmon, and Médard, M., “Multi-user Guesswork and Brute Force Security”, *IEEE Transactions on Information Theory*, vol. 61, no. 12, December 2015, pp. 6876-6886
  104. J. Du, Médard, M., Xiao, M., and Skoglund, M., “Scalable Capacity Bounding Models for Wireless Networks”, *IEEE Transactions on Information Theory*, vol. 62, no. 1, January 2016, pp. 208-229
  105. G. Bianchi, Bracciale, L., Censor-Hillel, K., Lincoln, A., and Médard, M., “The one-out-of-k Retrieval Problem and Linear Network Coding”, in *Advances in Mathematics of Communications, Vol. 10, No. 1, 2016*, pp. 95-112
  106. W. Zeng, Cadambe, V., and Médard, M., “Alignment based Network Coding for Two-Unicast-Z Networks”, accepted to *IEEE Transactions on Information Theory*\*\*
  107. J. Bilbao, Crespo, P., Armendariz, I., and Médard, M., “Network Coding in the Link Layer for Reliable Narrowband Powerline Communications”, accepted to *IEEE Journal of Selected Areas in Communication*
  108. J.-K. Sundararajan, Shah, D. Médard, M., and Sadeghi, P., “Feedback-based Online Network Coding”, accepted to *IEEE Transactions on Information Theory*\*\*
  109. V. Cadambe, Lynch, N., Médard, M., and Musial, P., “A Coded Shared Atomic Memory Algorithm for Message Passing Architectures”, accepted to *Distributed Computing, Elsevier*.
1. Proceedings of Refereed Conferences:
    1. T.P. McGarty and Médard, M., “Wireless Architectural Alternatives: Current Economic Valuations Versus Broadband Options, The Gilder Conjecture,” *Telecommunications Policy Research Conference*, Section 1, pp. 174-200, October 1994.
    2. M. Médard and Gallager, R.G., “The Issue of Spreading in Multipath Time-Varying Channels,” *IEEE Vehicular Technology Conference (VTC)*, Volume 1, pp. 1-5, July 1995.
    3. M. Médard and Gallager, R.G., “The Effect of a Randomly Time-varying Channel on Mutual Information,” *IEEE International Symposium on Information Theory (ISIT)*, pg. 139, September 1995.
    4. M. Médard and Gallager, R.G., “The Effect of Channel Variations upon Capacity,” *IEEE Vehicular Technology Conference (VTC)*, Volume 3, pp. 1781-1785, April 1996.
    5. M. Médard, “Security Issues for All-Optical Networks,” invited panelist statement, at the *National Information Systems Security Conference*, Volume 2, pg. 882, October 1996.

## Publications of Muriel Médard

6. M. Médard, Finn, S.G., and Barry, R.A., "Automatic Protection Switching for Multicasting in Optical Mesh Networks," *Optical Fiber Communication Conference (OFC)*, pp. 314-315, February 1997.
7. S.G. Finn, Médard, M., and Barry, R.A., "A Novel Approach to Automatic Protection Switching," *IEEE International Conference on Communications (ICC)*, pp. 272-276, Vol.1, June 1997.
8. R.G. Gallager and Médard, M., "Bandwidth Scaling for Fading Channels," *IEEE International Symposium on Information Theory (ISIT)*, pg. 471, July 1997.
9. M. Médard and Goldsmith, A.J., "Capacity of Time-Varying Channels with Channel Side Information," *IEEE International Symposium on Information Theory (ISIT)*, pg. 372, July 1997.
10. A.H. Chan and Médard, M., "Reconfigurable Feedback Shift Registers," *IEEE International Symposium on Information Theory (ISIT)*, pg. 178, July 1997.
11. M. Médard, "Capacity of Correlated Jamming Channels," *Allerton Conference on Communication, Control, and Computing*, pp. 1043-1052, November 1997.
12. M. Médard, "Bound on Mutual Information for DS-CDMA spreading over Independent Channels," invited paper, *Asilomar Conference on Signals, Systems and Computers*, Volume1, pp. 187-191, October 1997.
13. D. Marquis, Médard, M., Barry, R.A., Finn, S.G., "Physical Security Considerations in All-Optical Networks," invited paper, *Proceedings of the International Society for Optical Engineering (SPIE)*, vol. 3228, pp. 260-271, November 1997.
14. M. Médard, Chan, A.H., Moores, J.D., Hall, K.A., Rauschenbach, K.R., and Parikh, S., "Ultrafast Cryptography Using Optical Logic in Reconfigurable Feedback Shift Registers," *Proceedings of the International Society for Optical Engineering (SPIE)*, vol. 3228, pp. 342-345, November 1997.
15. S.G. Finn, Médard, M., and Barry, R.A., "A New Algorithm for Bi-directional Self Healing for Arbitrary Redundant Networks," *Optical Fiber Communication Conference (OFC)*. pp. 298-299, February 1998
16. M. Médard, Chinn, S.R., and Saengudomlert, P., "Attack Detection in All-optical Networks," *Optical Fiber Communication Conference (OFC)*, pp. 272-273, February 1998. \*\*
17. R. Bergman, Médard, M., and Chan, S., "Distributed Algorithms for Attack Localization in All-Optical Networks," *Internet Society Network and Distributed System Security (NDSS) Symposium*, Session 3, paper 1 (15 pages), February 1998.
18. M. Médard, Marquis, D., and Chinn, S.R., "Attack Detection Methods for All-Optical Networks," *Internet Society Network and Distributed System Security (NDSS) Symposium*, Session 3, paper 2 (17 pages), February 1998.
19. Barry, R.A. and Médard, M., "BER Analysis of Low-rate Communications Through a Single Electro-Optic R2 Nonlinear Regenerator," *IEEE Conference on Lasers and Electro-Optics (CLEO)*, pp. 455-456, May 1998.
20. R.G. Gallager, Médard, M., Barry, R.A., and Finn, S.G., "Multicast Automatic Protection Switching in Arbitrary Redundant Graphs," *IEEE International Conference on Communications (ICC)*, Volume 1, pp. 640-644, June 1998.
21. J. Yueh, Chan, A.H., and Médard, M., "On the Complexity of Reconfigurable Feedback Shift Register Sequences," *IEEE International Symposium on Information Theory (ISIT)*, pg. 133, August 1998.

## Publications of Muriel Médard

22. M. Médard, "A Coding Theorem for Multiple-Access Decorrelating Channels," *IEEE International Symposium on Information Theory (ISIT)*, pg. 215, August 1998.
23. M. Médard, "Secure Optical Communications," invited paper, FE3, *Lasers and Electro-Optics Society (LEOS) Annual Meeting*, pp. 323-324, Vol.2, December 1998.
24. M. Médard, Finn, S.G., and Barry, R.A., "WDM Loop-back in Mesh Networks," *Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM)*, pp. 752-759. Vol.2, March 1999.
25. M. Médard and Goldsmith, A.J., "Capacity of Time-Varying Channels with Side Information at the Sender and the Receiver," *Miniconference on Information Theory, IEEE International Conference on Communications (ICC)*, pp. 16-20, June 1999.
26. M. Médard, "Processing of Wireless Signals to Preserve Wireline Network Resources," invited paper, *IEEE Wireless Communications and Networking Conference (WCNC)*, Volume 1, pp. 61-65, September 1999.
27. M. Médard and Goldsmith, A., "Capacity of Time-Slotted ALOHA Systems," invited paper, *IEEE Wireless Communications and Networking Conference (WCNC)*, Volume 1, pp. 490-494, September 1999.
28. M. Médard, Huang, J., Meyn, S.P., and Goldsmith, A., "Capacity of Time-Slotted ALOHA Systems," *IEEE International Symposium on Information Theory (ISIT)*, pg. 407, June 2000. \*\*
29. M. Médard and Srikant, R., "Capacity of Nearly-decomposable Markovian Fading Channels under Asymmetric Receiver-Sender Side Information," *IEEE International Symposium on Information Theory (ISIT)*, pg. 413, June 2000.
30. S.S. Lumetta and Médard, M., "Robust Routing for Local Area Optical Access Networks," *IEEE Lasers and Electro-Optics Society (LEOS) Summer Topical Meeting*, pp. IV39 -IV40, July 2000.
31. M. Médard, Lumetta. S.S., and Tseng, Y., "Capacity-Efficient Restoration for Optical Networks," *Optical Fiber Communication Conference (OFC)*, paper ThO2, pp. 207-209, March 2000. \*\*
32. M. Médard and Tse, D.N.C., "Spreading in Block-Fading Channels," *Asilomar Conference on Signals, Systems, and Computers*, Volume 2, pp. 1598-1602, November 2000.
33. P. Saengudomlert and Médard, M., "Limits of BER Guarantees in Transparent Optical Networks Using OOK Signaling," invited paper, *38th Annual Allerton Conference on Communication, Control, and Computing*, Volume 1, pp. 583-592, October 2000. \*\*
34. M. Médard, Abou-Fayçal, I., and Madhow, U., "Adaptive Coding with Pilot Signals," invited paper, *38th Annual Allerton Conference on Communication, Control, and Computing*, pp. 337-346, October 2000. \*\*
35. M. Médard and Srikant, R., "The Effect on Capacity of Decoupling Slow Fades from Fast Fades in Channels with Asymmetric Channel Information," *IEEE International Symposium on Information Theory and its Applications (ISITA)*, pp. 697-700, November 2000.
36. S.S. Lumetta and Médard, M., "Classification of Two-link Failures in All-optical Networks," *Optical Fiber Communication Conference (OFC)*, Volume 1, pp. TuO3- 1-TuO3-3, March 2001.
37. A. Narula-Tam, Finn, S.G., and Médard, M., "Analysis of Reconfiguration of IP over WDM Access Networks," *Optical Fiber Communication Conference (OFC)*, sponsored by the Optical Society of America, Volume 1, pp. MN4-1 -MN4-3, March 2001.

## Publications of Muriel Médard

38. S. Lumetta and Médard, M., "Towards a Deeper Understanding of Link Restoration Algorithms for Mesh Networks," *Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM)*, Volume 1, pp. 367-375, April 2001.
39. R. Koetter and Médard, M., "An algebraic approach to network coding and robust networks," *IEEE International Symposium on Information Theory (ISIT)*, pg. 104, June 2001.
40. A.L. Libarikian and Médard, M., "A Robust Optical Folded Bus Architecture for Overlay Access Networks," invited paper, *39th Annual Allerton Conference on Communication, Control, and Computing*, pp. 633-645, October 2001. \*\*
41. T.P. Coleman and Médard, M., "Trade-off Between Power Consumption and Delay in Wireless Packetized Systems," invited paper, *39th Annual Allerton Conference on Communication, Control, and Computing*, pp. 501-512, October 2001. \*\*
42. R. Koetter and Médard, M., "Beyond Routing: An Algebraic Approach to Network Coding," *Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM)*, Volume 1, pp. 122-130, July 2002. **(selected as one of the outstanding papers from INFOCOM for transfer to IEEE/ACM Transactions on Networking)**
43. H. Wang, Modiano, E., and Médard, M., "Using Local Information for WDM Network Protection," invited paper, *Symposium on Photonics, Networks and Computing, (JCIS)*, pp. 1398-1401, March 2002. \*\*
44. H. Wang, Modiano, E., and Médard, M., "Partial Path Protection for WDM networks," *Sixth Institute for Operations Research and the Management Sciences (INFORMS) Telecommunications Conference*, paper ME01.2 (2 pages), March 2002. \*\*
45. D.S. Lun, Médard, M., and Abou-Fayçal, I., "Error Exponents for Wideband Multipath Fading Channels—a Strong Coding Theorem," *Conference on Information Sciences and Systems (CISS)*, Princeton, pp. 866-870, April 2002. \*\*
46. T. Ho, Médard, M., and Koetter, R., "A Coding View of Network Recovery and Management for Single Receiver Communications," *Conference on Information Sciences and Systems (CISS)*, Princeton, pp. 590-597, April 2002. \*\*
47. M. Médard, "Optical Network Survivability Beyond the Core," invited paper, *Proceedings of the International Society for Optical Engineering (SPIE)*, Volume 4872, pp. 239-253, July 2002.
48. H. Wang, Modiano, E., and Médard, M., "Partial Path Protection for WDM Networks: End-to-End Recovery Using Local Failure Information," *IEEE Symposium on Computers and Communications (ISCC)*, pp. 719-725, July 2002. \*\*
49. T. Ho, Médard, M., and Koetter, R., "A Coding View of Network Capacity, Recovery and Management," *International Symposium on Information Theory*, pg. 137, July 2002. \*\*
50. D.S. Lun, Médard, M., and Abou-Fayçal, I., "An Upper Bound on the Error probability of Capacity-Achieving Signaling On Broadband Rayleigh Fading Channels," *IEEE Vehicular Technology Conference*, Volume 1, pp. 577-581, September 2002. \*\*
51. C. Luo and Médard, M., "FSK for Ultrawideband—How Close to Capacity Can We Get?" *International Symposium on Information Theory and its Applications*, pp. 839-842, October 2002. \*\*
52. D.S. Lun, Médard, M., and Abou-Fayçal, I., "Error Exponents for Capacity-Achieving Signaling on Wideband Rayleigh Fading Channels," *International Symposium on Information Theory and its Applications*, pp. 255-258, October 2002. \*\*

## Publications of Muriel Médard

53. C. Luo and Médard, M., "Frequency Shift Keying for Ultrawideband-Achieving rates of the Order of Capacity," invited paper, *40th Annual Allerton Conference on Communication, Control, and Computing*, Volume 2, pp. 785-796, October 2002. \*\*
54. I. Abou-Fayçal, Médard, M., and Madhow, U., "Adaptive Coding for PSAM Without Feedback," invited paper, *Asilomar Conference on Signals, Systems, and Computers*, Volume 2, pp. 1503-1507, November 2002.
55. C. Luo and Médard, M., "Performance of Single-tone and Two-tone Frequency-shift keying for Ultrawideband," *Asilomar Conference on Signals, Systems, and Computers*, Volume 1, pp. 701-705, November 2002. \*\*
56. M. Effros, Médard, M., Ho T., Ray, S., Karger, D., and Koetter, R., "Linear Network Codes: A Unified Framework for Source Channel, and Network Coding," invited paper to the *DIMACS Workshop on Network Information Theory, DIMACS Series in Discrete Mathematics and Theoretical Computer Science*, Volume 66, American Mathematical Society, pp. 197-216, 2003. \*\*
57. T. Ho, Médard, M., and Koetter, R., "An Information-Theoretic View of Network Management," *Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM)*, Volume 2, pp. 1456-1466, July 2003. \*\*
58. T. Ho, Koetter, R., Médard, M., Karger, D.R., and Effros, M., "The Benefits of Coding over Routing in a Randomized Setting," *IEEE International Symposium on Information Theory (ISIT)*, pg. 442, June 2003. \*\*
59. T. Ho, Karger, D.R., Médard, M., and Koetter, R., "Network Coding from a Network Flow Perspective," *IEEE International Symposium on Information Theory (ISIT)*, pg. 441, June 2003. \*\*
60. T. Coleman and Médard, M., "The Impact of User Information on Power-Delay Tradeoffs Between in Bursty Packetized Systems," *IEEE International Symposium on Information Theory (ISIT)*, pg. 440, June 2003. \*\*
61. N. Peranginangin, Médard, M., and Gallager, R., "Capacity of a Multi Output Channel with Distributed Processing," *IEEE International Symposium on Information Theory (ISIT)*, Yokohoma, Japan, pg. 97, June 2003. \*\*
62. A.F. Dana, Gowaikar, R., Hassibi, B., Effros, M., and Médard, M., "Should we Break a Wireless Network into Subnetworks?" *41st Allerton Annual Conference on Communication, Control and Computing*, Vol. 1, pp. 50-59, October 2003.
63. S. Ray, Médard, M., and Abounadi, J., "Noise-Free Multiple Access Networks Over Finite Fields," *41st Allerton Annual Conference on Communication, Control and Computing*, Vol. 1, pp. 510-511, October 2003. \*\*
64. L. Zheng, Médard, M., Tse, D.N.C., and Luo, C., "On the Interplay Between SNR and Coherence in Wideband Channels," invited paper, *41st Allerton Annual Conference on Communication, Control and Computing*, Vol. 1, pp. 420, 429, October 2003. \*\*
65. T. Ho, Médard, M., Shi, J., Effros, M., and Karger, D., "On Randomized Network Coding," invited paper, *41st Allerton Annual Conference on Communication, Control and Computing*, Volume 1, pp. 21-29, October 2003. \*\*
66. M. Médard, Effros, M., Ho, T., and Karger, D., "On Coding for Non-Multicast Networks," invited paper, *41st Allerton Annual Conference on Communication, Control and Computing*, Volume 1, pp. 11-20, October 2003. \*\*
67. G. Weichenberg, Chan, V., and Médard, M., "Reliable Architectures for Networks Under Stress," *Fourth International Workshop on the Design of Reliable*

Publications of Muriel Médard

- Communication Networks (DRCN)*, pp. 263-271, October 2003. (**Winner of the Best Paper Award**) \*\*
68. S. Ray, Médard, M., and Abounadi, J., “Random Coding in Noise-Free Multiple Access Networks over Finite Fields,” *IEEE Global Telecommunications Conference (Globecom) Communication Theory Workshop*, 1898-1902, Vol.4, December 2003. \*\*
  69. C. Zheng and Médard, M., “How Far Should We Spread Using DS-CDMA in Time and Frequency Selective Fading Channels?” *IEEE Global Telecommunications Conference (Globecom) Communication Theory Workshop*, Volume 3, pp. 1563-1567, December 2003. \*\*
  70. C. Luo, Médard, M., and Zheng, L., “Error Exponents for Multi-tone Frequency Shift Keying on Wideband Rayleigh Fading Channels,” *IEEE Global Telecommunications Conference (Globecom) Wireless Communications Workshop*, Volume 2, pp. 779-783, December 2003. \*\*
  71. M. Kim and Médard, M., “Robustness in Large-Scale Random Networks,” *Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM) 2004*, pp. 2364 -2373, March 2004. \*\*
  72. G. Weichenberg, Chan, V., and Médard, M., “High-Reliability Architectures for Networks Under Stress,” *Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM) 2004*, pp. 131-141, March 2004. \*\*
  73. G. Weichenberg, Médard, M., and Chan, V., “Designing for Resilience to Multiple Failures,” invited paper, *Optical Fiber Communication Conference (OFC)*, sponsored by the Optical Society of America, Vol. 2, pp. 224-227, March 2004. \*\*
  74. T.P. Coleman, Lee, A.H., Médard, M., and Effros, M., “On Some New Approaches to Practical Slepian-Wolf Compression Inspired by Channel Coding,” *2004 IEEE Data Compression (DCC) Conference*, Snowbird Utah, pp. 282-291, March 2004. \*\*
  75. R. Koetter, Effros, M., Ho, T., and Médard, M., “Network Codes as Codes on Graphs,” invited paper, *38th Annual Conference on Information Sciences and Systems*, Princeton, paper 632 (6 pages), March 2004. \*\*
  76. T. Ho, Médard, M., Effros, M., and Koetter, R., “Network Coding for Correlated Sources,” invited paper, *38th Annual Conference on Information Sciences and Systems*, Princeton, paper 601 (6 pages), March 2004. \*\*
  77. L. Zheng, Tse, D.N.C., and Médard, M., “Channel Coherence in the Low SNR Regime,” invited paper, *38th Annual Conference on Information Sciences and Systems*, Princeton, paper 604 (6 pages), March 2004. \*\*
  78. T. Ho, Leong, B., Médard, M., Koetter, R., Chang, Y., and Effros, M., “On the utility of network coding in dynamic environments,” *International Workshop on Wireless Ad-hoc Networks (IWWAN)*, Special Session Tuesday, Paper 5 (5 pages), June 2004. (**Winner of the Best Student Paper Award**) \*\*
  79. A. Bdeir, Abou-Fayçal, I., and Médard, M., “Power Allocation Schemes for Pilot Symbol Assisted Modulation over Rayleigh Fading Channels with no Feedback,” *Communication Theory Symposium of the IEEE International Conference on Communications (ICC 2004)*, Vol. 2, pp. 731-742, June 2004. \*\*
  80. I. Abou-Fayçal and Médard, M., “Optimal Uncoded Regeneration for Binary Antipodal Signaling,” *Communication Theory Symposium of the IEEE International Conference on Communications (ICC 2004)*, Vol. 2, pp. 224-227, June 2004.

## Publications of Muriel Médard

81. T. Ho, Leong, B., Koetter, R., Médard, M., and Effros, M., “Byzantine Modification Detection in Multicast Networks using Randomized Network Coding,” *IEEE International Symposium on Information Theory*, pg. 144, June 2004. \*\*
82. T.P. Coleman, Lee, A.H., Médard, M., and Effros, M., “A New Source-Splitting Approach to the Slepian-Wolf Problem,” *IEEE International Symposium on Information Theory*, pg. 332, June 2004. \*\*
83. L. Zheng, Tse, D.N.C., and Médard, M., “Channel Coherence in the Low SNR Regime,” *IEEE International Symposium on Information Theory*, pg. 416, June 2004.
84. J. Huang, Meyn, S., and Médard, M., “Error Exponents for Channel Coding and Signal Constellation Design,” *IEEE International Symposium on Information Theory*, pg. 478, June 2004.
85. D.S. Lun and Médard, M., “On the Sufficiency of Power Control for a Class of Channels with Feedback,” *IEEE International Symposium on Information Theory*, pg. 73, June 2004. \*\*
86. D.S. Lun and Médard, M., “On Coding for Reliable Communication over Packet Networks,” invited paper, *42nd Allerton Annual Conference on Communication, Control and Computing*, paper 42-277 (10 pages), October 2004. \*\*
87. S. Jaggi, Effros, M., Ho, T., and Médard, M., “On Linear Network Coding,” invited paper, *42nd Allerton Annual Conference on Communication, Control and Computing*, paper 42-263 (10 pages), October 2004.
88. P.G. Youssef-Massaad, Médard, M., and Zheng, L., “On the Capacity of Multiple-access Channels with Processing Power,” invited paper, *42nd Allerton Annual Conference on Communication, Control and Computing*, paper 42-279 (10 pages), October 2004. \*\*
89. S. Deb and Médard, M., “Algebraic Gossip: A Network Coding Approach to Optimal Multiple Rumor Mongering,” *42nd Allerton Annual Conference on Communication, Control and Computing*, paper 42-121 (10 pages), October 2004.
90. S. Ray, Médard, M., Zheng, L., and Abounadi, J., “On the Sublinear Behavior of MIMO Channel Capacity at low SNR,” *International Symposium on Information Theory and its Applications (ISITA 2004)*, pp. 1031-1034, October 2004. \*\*
91. P.G. Massaad, Médard, M., and Zheng, L., “Impact of Processing Energy on the Capacity of Wireless Channels,” *International Symposium on Information Theory and its Applications (ISITA 2004)*, pp. 1580-1585, October 2004. \*\*
92. D.S. Lun, Médard, M., Ho, T., and Koetter, R., “Network Coding with a Cost Criterion,” *International Symposium on Information Theory and its Applications (ISITA 2004)*, pp. 1232-1237, October 2004. \*\*
93. M. Effros, Koetter, R., Goldsmith, A., and Médard, M., “On Source and Channel Codes for Multiple Inputs and Outputs: Does Multiple Description Meet Space Time?” invited paper, *Information Theory Workshop*, pp. 324-329, October 2004.
94. L. Zheng, Tse, D., and Médard, M., “On the Costs of Channel State Information,” invited paper, *Information Theory Workshop*, pp. 423-427, October 2004.
95. S. Ray, Médard, M., and Zheng, L., “On MIMO in the Wideband Limit,” invited paper, *Asilomar Conference on Signals, Systems, and Computers*, pp. 1516-1520, November 2004. \*\*
96. J.K. Sundararajan, Zhao, F., Massaad, P.G., and Médard, M., “A Modification to RED AQM for CIOQ Switches,” *IEEE Global Telecommunications Conference (Globecom)*, pp. 1708-1712, December 2004. \*\*



Publications of Muriel Médard

97. T.P. Coleman, Médard, M., and Effros, M., “Towards Bridging the Gap Between Theory and Practice for the Slepian-Wolf Problem,” invited paper, *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, pp. v/1105-1108, March 2005. \*\*
98. D.S. Lun, Ratnakar, N., Koetter, R., Médard, M., Ahmed, E., and Lee, H., “Achieving Minimum-Cost Multicast: A Decentralized Approach Based on Network Coding,” *Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM)*, pp. 1607-1617, March 2005. \*\*
99. T.P. Coleman, Médard, M., and Effros, M., “Towards Practical Minimum-Entropy Universal Decoding,” *IEEE Data Compression Conference (DCC)*, Snowbird Utah, pp. 33-42, March 2005. \*\*
100. S. Ray, Médard, M., and Zheng, L., “On Error Probability for Wideband MIMO Channels,” *Conference on Information Sciences and Systems (CISS)*, Johns Hopkins, TP6-Paper 5 (5 pages), March 2005. \*\*
101. C. Luo, Médard, M., and Zheng, L., “On Capacity-Achieving Distribution in Rician Fading Channels,” *Conference on Information Sciences and Systems (CISS)*, Johns Hopkins, WA2-Paper 5 (5 pages), March 2005. \*\*
102. S. Acedanski, S. Deb, Médard, M., and Koetter, R., “How Good is Random Linear Coding Based Distributed Networked Storage?” **invited paper**, *First Workshop on Network Coding, Theory, and Applications*, Session 3, Paper 1 (6 pages), April 2005. \*\*
103. T.P. Coleman, Médard, M., and Effros, M., “Practical Universal Decoding for Combined Routing and Compression in Network Coding,” *First Workshop on Network Coding, Theory, and Applications*, Session 3, Paper 4 (6 pages), April 2005. \*\*
104. D.S. Lun, Médard, M., and Karger, D., “On the Dynamic Multicast Problem for Coded Networks,” *First Workshop on Network Coding, Theory, and Applications*, Session 3, Paper 3 (6 pages), April 2005. \*\*
105. T. Ho, Leong, B., Koetter, R., and Médard, M., “Distributed Asynchronous Algorithms for Multicast Network Coding,” *First Workshop on Network Coding, Theory, and Applications*, Session 3, Paper 2 (6 pages), April 2005. \*\*
106. J. K. Sundararajan, Deb, S., and Médard, M., “Extending the Birkhoff-Von Neumann Switching Strategy to Multicast Switches,” *NETWORKING 2005*, pp. 1321-1325, May 2005 (appears in *Lecture Notes in Computer Science*, Springer Verlag, vol. 3462/2005). \*\*
107. S. Deb, Effros, M., Ho, T., Karger, D., Koetter, R., Lun, D.S., Médard, M., and Ratnakar, N., “Network Coding for Wireless Applications; A Brief Tutorial,” **invited paper**, *International Workshop on Wireless and Ad-hoc Networks (IWWAN)*, Paper 81 (3 pages), May 2005. \*\*
108. T.P. Coleman, Médard, M., and Effros, M., “Linear Complexity Universal Decoding with Exponential Error Probability Decay,” *Wireless Com Symposium on Information Theory, 2005*, Volume 2, pp. 1593-1596, June 2005. \*\*
109. D.S. Lun, Médard, M., and Koetter, R., “Efficient Operation of Wireless Packet Networks Using Network Coding,” **invited paper**, *International Workshop on Convergent Technologies*, Session 8, Paper 1, (5 pages), June 2005. \*\*
110. C. Pandit, Huang, J., Meyn, S., Médard, M., and Veeravalli, V., “Entropy, Inference, and Channel Coding,” *Proceedings of the Institute for Mathematics and its Applications Summer Workshop on Wireless Communications*, Thursday-Friday Paper 2 (25 pages), July 2005.

Publications of Muriel Médard

111. T.P. Coleman, Martinian, E., Effros, M., Médard, M., “Interference Management via Capacity-Achieving Codes for the Deterministic Broadcast Channel,” *Information Theory Workshop*, pp. 29-33, August 2005. \*\*
112. T.P. Coleman, Effros, M., Martinian, E., and Médard, M., “Rate Splitting for the Broadcast Channel,” *International Symposium on Information Theory*, pp. 2189 – 2192, September 2005. \*\*
113. A. Lee and Médard, M., “Simplified Random Network Codes for Multicast Networks,” *International Symposium on Information Theory*, pp.1725 – 1729, September 2005. \*\*
114. S. Ray, Médard, M., and Zheng, L., “Wideband Non-coherent MIMO Capacity,” *International Symposium on Information Theory*, pp. 646 – 650, September 2005. \*\*
115. C. Luo, Médard, M., Zheng, L., and Lun, D.S., “Multi-tone FSK with Feedback,” *International Symposium on Information Theory*, pp. 112 – 116, September 2005. \*\*
116. D.S. Lun, Médard, M., Koetter, R., and Effros, M., “Further Results on Coding for Reliable Communication over Packet Networks,” *International Symposium on Information Theory*, pp. 1848 – 1852, September 2005. \*\*
117. M. Vehkaperä and Médard, M., “A Throughput-Delay Trade-Off in Packetized Systems With Erasures,” *International Symposium on Information Theory*, pp. 1858-1862, September 2005. \*\*
118. S. Deb, Médard, M., and Choute, C., “On Random Network Coding Based Information Dissemination,” *International Symposium on Information Theory*, pp. 278-282, September 2005. \*\*
119. S. Ray, Médard, M., and Zheng, L., “Fiber Aided Wireless Network Architecture: A SISO wireless-optical channel,” **invited paper**, *Allerton Annual Conference on Communication, Control and Computing*, pp. 1993-2002, October 2005. \*\*
120. S. Katti, Katabi, D., Hu, W., Rahul, H., and Médard, M., “The Importance of Being Opportunistic: Practical Network Coding for Wireless Environments,” **invited paper**, *Allerton Annual Conference on Communication, Control and Computing*, pp. 756-765, October 2005.
121. R. Cristescu, Effros, M., and Médard, M., “On the Capacity of a Binary MIMO Channel with Random Interference,” *Allerton Annual Conference on Communication, Control and Computing*, pp. 1970-1979, October 2005.
122. D.S. Lun, Médard, M., Koetter, R., “Network Coding for Efficient Wireless Unicast,” **invited paper**, *IEEE International Zurich Seminar on Communications (IZS)*, pp. 74-77, February 2006. \*\*
123. D. Katabi, Katti, S., Hu, W., Rahul, H., and Médard, M., “On Practical Network Coding for Wireless Environments,” **invited paper**, *IEEE International Zurich Seminar on Communications*, pp. 84-85, February 2006.
124. S. Jing, Zheng, L., and Médard, M., “On the use of sounding in wideband channels,” **invited paper**, *IEEE International Zurich Seminar on Communications*, pp. 170-173, February 2006. \*\*
125. T.P. Coleman and Médard, M., “On Low-Complexity Decodable Universally Good Linear Codes,” **invited paper**, *UCSD Information Theory and Applications Inaugural Workshop*, 5 pages, February 2006. \*\*
126. J.K. Sundararajan, Médard, M., Koetter, R., and Erez, E., “A Systematic Approach to Network Coding Problems using Conflict Graphs,” **invited paper**, *UCSD Information Theory and Applications Inaugural Workshop*, 5 pages, February 2006. \*\*

Publications of Muriel Médard

127. T.P. Coleman, Médard, M., and Effros, M., "Time-Sharing Vs. Source-Splitting in the Slepian-Wolf Problem: Error Exponents Analysis," *Data Compression Conference*, pp. 53-62, March 2006. \*\*
128. A. Eryilmaz, Ozdaglar, A., and Médard, M., "On Delay Performance Gains from Network Coding," **invited paper**, *Proceedings of the Conference on Information Sciences and Systems*, pp. 864-870, Princeton, 2006.
129. G.E. Weichenberg, Chan, V.W.S., and Médard, M., "On the Capacity of Optical Networks: A Framework for Comparing Different Transport Architectures," *INFOCOM*, pp. 1-13, April 2006. \*\*
130. D.S. Lun, Pakzad, P., Fragouli, C., Médard, M., and Koetter, R., "An Analysis of Finite-Memory Random Linear Coding on Packet Streams," *Netcod 2006 (Second Workshop on Network Coding, Theory, and Applications)*, Session 4, Paper 2 (6 pages), April 2006. \*\*
131. J. Tan and Médard, M., "Secure Network Coding with a Cost Criterion," *Netcod 2006 (Second Workshop on Network Coding, Theory, and Applications)*, Session 4, Paper 3 (6 pages), April 2006. \*\*
132. M. Kim, Ahn, C. W., Médard, M., and Effros, M., "On Minimizing Network Coding Resources: An Evolutionary Approach," *2006 (Second Workshop on Network Coding, Theory, and Applications)*, Session 3, Paper 1 (6 pages), April 2006. \*\*
133. S. Ray, Moulin, P., and Médard, M., "On Jamming in the Wideband Regime," *International Symposium on Information Theory (ISIT)*, 2574-2577, July 2006. \*\*
134. S. Ray, Zheng, L., and Médard, M., "A SIMO Fiber Aided Wireless Network Architecture," *ISIT*, pp. 2904-2908, July 2006. \*\*
135. S. Ray, Zheng, L., and Médard, M., "On Error Probability for Non-coherent MIMO Channels in the Wideband Regime," *ISIT*, pp. 2284-2288, July 2006. \*\*
136. D. Traskov, Ratnakar, N., Koetter, R., D.S. Lun, and Médard, M., "Network Coding for Multiple Unicasts: An Approach based on Linear Optimization," *ISIT*, pp. 1758-1762, July 2006. \*\*
137. F. Zhao and Médard, M., "Online Network Coding for the Dynamic Multicast Problem," *ISIT*, pp. 1753-1757, July 2006. \*\*
138. S. Ray, Moulin, P., and Médard, M., "On Optimal Signaling and Jamming Strategies in Wideband Fading Channels," *IEEE Workshop on Signal Processing Advances in Wireless Communications (SPAWC) 2006*, Cannes, France, pp. 1-5, July 2006. \*\*
139. G. Weichenberg, Chan, V.W.S., and Médard, M., "Cost-Efficient Optical Network Architectures," accepted to the *32nd European Conference on Optical Communication (ECOC)*, Cannes, France, (2 pages), September 2006. \*\*
140. S. Ray, Médard, M., and Zheng, L., "FAWNA: A High-speed Mobile Communication Network Architecture," **invited paper**, *Accessnets*, Article 2 (6 pages), Athens, Greece, September 2006. \*\*
141. J.-S. Park, Lun, D., Gerla, M., and Médard, M., "Performance Evaluation of Network Coding in multicast MANET," *IEEE MILCOM 2006*, Washington, D.C., pp. 1-6, September 2006. \*\*
142. S. Katti, Rahul, H., Hu, W., Katabi, D., Médard, M., and Crowcroft, J., "XORs in the Air-Practical Wireless Network Coding," *Sigcomm Pisa*, Italy, pp. 243-254, September 2006.
143. E. Ahmed, Eryilmaz, A., Médard, M., and Ozdaglar, A., "Economic Aspects of Network Coding," *Allerton Conference*, October 2006\*\*

Publications of Muriel Médard

144. S. Ray, Médard, M., and Zheng, L., "On Interface Rate Allocation for a Fiber Aided Wireless Network," *Asilomar Conference on Signals, Systems and Computers*, pp., 651-655, November 2006. \*\*
145. V. Doshi, Shah, D., Médard, M., and Jaggi, S., "Graph coloring and conditional graph entropy," in *Asilomar Conference on Signals, Systems, and Computers*, 2137-2141, November 2006. \*\*
146. V.W.S. Chan, Weichenberg, G., and Médard, M., "Flow Switching," **invited paper**, *Workshop on Optical Burst Switching (WOBS)*, Paper 1 (8 pages), San Jose, October 2006. \*\*
147. G. Weichenberg, Chan, V.W.S., and Médard, M., "On the Throughput-Cost Tradeoff of Multi-Tiered Optical Network Architectures," *IEEE Global Telecommunications Conference (GLOBECOM)*, pp. 1-6, San Francisco, December 2006. \*\*
148. E. Abbé, Zheng, L., Meyn, S., and Médard, M., "Finding the best mismatched detector for channel coding and hypothesis testing", *ITA*, January 2007
149. A. Lee, Médard, M., Haigh, K.Z., Gowan, S., and Rubel, P., "Minimum-Cost Subgraphs for Joint Distributed Source and Network Coding," *Third Workshop on Network Coding, Theory, and Applications*, Paper 7 (4 pages), January 2007. \*\*
150. J.-K. Sundararajan, Médard, M., Kim, M., Eryilmaz, A., Shah, D., and Koetter, R., "Network Coding in a Multicast Switch," *INFOCOM 2007*, pp. 1145-1153, March 2007. \*\*
151. S. Jaggi, Langberg, M., Katti, S., Ho, T., Katabi, D., and Médard, M., "Resilient Network Coding In the Presence of Byzantine Adversaries," *INFOCOM 2007*, pp. 616-624, March 2007.
152. M. Kim, Médard, M., Aggarwal, V., O'Reilly, U.-M., Kim, W., Ahn, C.W., and Effros, M., "Evolutionary Approaches to Minimizing Network Coding Resources," *INFOCOM 2007*, pp. 1991-1995, March 2007. \*\*
153. C. Fragouli, Lun, D., Médard, M., and Pakzad, P., "On Feedback for Network Coding," *Conference on Information Sciences and Systems (CISS)*, Johns Hopkins, (5 pages), March 2007.
154. V. Doshi, Shah, D., Médard, M., and Jaggi, S., "Distributed Functional Compression through Graph Coloring," *Data Compression Conference*, pp. 93-102, paper #8, March 2007. \*\*
155. M. Kim, Aggarwal, V., O'Reilly, U.-M., Médard, M., and Kim, W., "Genetic Representations for Evolutionary Minimization of Network Coding Resources," *EVOComnet 07*, pp. 21-31, April 2007. \*\*
156. L. Lima, Médard, M., and Barros, J., "Random Network Coding: A Free Cipher?," *ISIT* (5 pages), July 2007.
157. M. Kim, Sundararajan, J.-K., and Médard, M., "Network Coding for Speedup in Switches," *ISIT* (5 pages), July 2007. \*\*
158. M. Xiao, Médard, M., and Aulin, T., "A Binary Coding Approach for Combination Networks and General Erasure Networks," *ISIT* (5 pages), July 2007.
159. D. Traskov, Lun, D.S., Koetter, R., and Médard, M., "Network Coding in Wireless Networks with Random Access," *ISIT* (5 pages), July 2007.
160. V. Doshi, Shah, D., and Médard, M., "Source Coding with Distortion through Graph Coloring," *ISIT* (5 pages), July 2007. \*\*
161. F. Zhao, Kalker, T., Médard, M., and Han, K., "Signatures for Content Distribution with Network Coding," *ISIT* (5 pages), July 2007. \*\*

## Publications of Muriel Médard

162. S. Katti, Maric, I., Goldsmith, A., Katabi, D., and Médard, M., “Joint Relaying and Network Coding in Wireless Networks,” *ISIT* (5 pages), July 2007. \*\*
163. J.-K. Sundararajan, Shah, D., and Médard, M., “On Queueing in Coded Networks - Queue Size Follows Degrees of Freedom,” **invited** paper, *Information Theory Workshop*, pp. 212-217, July 2007. \*\*
164. F. Zhao, Lun, D., Médard, M., and Ahmed, E., “Decentralized Algorithms for Operating Coded Wireless Networks,” **invited** paper, *Information Theory Workshop* (6 pages), September 2007. \*\*
165. D. Lucani, Médard, M., and Stojanovic, M., “Network Coding Schemes for Underwater Networks: The Benefits of Implicit Acknowledgement,” *International Workshop on Under Water Networks* (8 pages), September 2007. \*\*
166. K. Han, Ho, T., Koetter, R., Médard, M., and Zhao, F., “On Network Coding for Security,” **invited** paper, *MILCOM* (6 pages), October 2007. \*\*
167. E. Ahmed, Eryilmaz, A., Médard, M., and Ozdaglar, A., “On the Scaling Law of Network Coding Gains in Wireless Networks,” *MILCOM* (6 pages), October 2007. \*\*
168. M. Kim, Médard, M., Aggarwal, V., and O’Reilly, U.-M., “On the Coding-Link Cost Tradeoff in Network Coding,” *MILCOM* (6 pages), October 2007. \*\*
169. I. Maric, Goldsmith, A., and Médard, M., “Information-Theoretic Relaying for Multicast in Wireless Networks,” *MILCOM* (6 pages), October 2007.
170. D. Katabi, Fragouli, C., Markopoulou, A., Rahul, H., and Médard, M., “Wireless Network Coding: Opportunities and Challenges,” *MILCOM* (6 pages), October 2007.
171. S. Katti, Shintre, S., Jaggi, S., Katabi, D., and Médard, M., “Real Network Codes Breaking the All-Or-Nothing Barrier”, *45<sup>th</sup> Allerton Conference on Communication, Control, and Computing*, October 2007
172. A. ParandehGheibi, Eryilmaz, A. Ozdaglar, A., and Médard, M., “Resource Allocation in Multiple Access Channels,” **invited** paper, *Asilomar Conference on Signals, Systems and Computers*, November 2007\*\*
173. A. ParandehGheibi, Eryilmaz, A. Ozdaglar, A., and Médard, M., “Dynamic Rate Allocation in Fading Multiple Access Channels,” **invited** paper, *ITA*, January 2008\*\*
174. S. Jing, Zheng, L., and Médard, M., “Layered source-channel coding: a distortion-diversity perspective,” **invited** paper, *ITA*, January 2008\*\*
175. B.K. Dey, Katti, S., Jaggi, S., Katabi, D., and Médard, M., “‘Real’ and ‘Complex’ Network Codes - Promises and Challenges”, *Fourth Workshop on Network Coding Theory and Applications (NETCOD)*, January 2008, pp. 1-6.
176. A. ParandehGheibi, Eryilmaz, A. Ozdaglar, A., and Médard, M., “Rate Allocation in Fading Multiple Access Channel,” *WiOpt*, March-April 2008\*\*
177. X. Shi, Lun, D.S., Meldrim, J, Koetter, R., and Médard, M., “Joint Base-calling of Two DNA Sequences with Factor Graphs”, *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, March-April 2008, pp. 2049-2052\*\*
178. D. Lucani, Stojanovic, M., and Médard, M., “On the Relationship between Transmission Power and Capacity of an Underwater Acoustic Communication Channel”, *OCEANS 08*, April 2008, paper (071201-059)\*\*
179. J.-K. Sundararajan, Shah, D., and Médard, M., “ARQ for Network Coding”, *ISIT 2008*, July 2008\*\*.
180. M. Xiao, Aulin, T., and Médard, M., “Systematic Binary Deterministic Rateless Codes”, *ISIT 2008*, July 2008.
181. S. Katti, Katabi, D., Balakrishnan, H., and Médard, M., “Symbol Level Network Coding for Wireless Mesh Networks”, *Sigcomm*, August 2008

## Publications of Muriel Médard

182. A. ParandehGheibi, Eryilmaz, A. Ozdaglar, A., and Médard, M., “Information Theory vs. Queueing Theory for Resource Allocation in Multiple Access Channels”, **invited** paper, *PIMRC*, September 2008\*\*
183. S. Jing, Zheng, L., and Médard, M., “Layered Source-Channel Coding: Towards Unifying Multiple Description and Successive Refinement”, **invited** paper, *Allerton Conference*, October 2008\*\*
184. M. Kim, Médard, M., O’Reilly, U.-M., “Integrating Network Coding into Heterogeneous Wireless Networks”, *MILCOM*, November 2008\*\* (9.3)
185. M. Kim, Médard, M., Barros, J., “Counteracting Byzantine Adversaries with Network Coding: An Overhead Analysis”, *MILCOM*, November 2008\*\* (9.5)
186. D. Lucani, Médard, M., and Stojanovic, M., "A Lower Bound to Transmission Power for Multicast in Underwater Networks using Network Coding", *ISITA*, December 2008\*\*
187. J.-K. Sundararajan, Shah, D., and Médard, M., “Online Network Coding for Optimal Throughput and Delay – the Three-Receiver Case”, *ISITA*, December 2008\*\*
188. L. Lima, Barros, J., Vilela, J.-P., and Médard, M., “An Information-Theoretic Cryptanalysis of Randomized Network Coding - is Protecting the Code Enough?”, *ISITA*, December 2008
189. D. Traskov, Heindlmaier, M., Médard, M., Koetter, R. and Lun, D.S., “Scheduling for Network Coded Multicast: A Conflict Graph Formulation”, 4th IEEE Workshop on Broadband Wireless Access, December 2008
190. D. Lucani, Médard, M. and Stojanovic, M. , “On Coding for Delay: New Approaches Based on Network Coding in Networks with Large Latency”, **invited paper**, *ITA conference*, February 2009
191. D. Lucani, Médard, M. and Stojanovic, M., “Random Linear Network Coding for Time Division Duplexing: When to Stop Talking and Start Listening”, *INFOCOM 2009*, April 2009\*\*
192. M. Kim, O’Reilly, U.-M., Médard, M. and Traskov, D., “An Evolutionary Approach To Inter-Session Network Coding”, *INFOCOM 2009*, April 2009\*\*
193. J.-K. Sundararajan, Shah, D., Médard, M., Mitzenmacher, M., and Barros, J. “Network Coding Meets TCP”, *INFOCOM 2009*, April 2009\*\*
194. D. Lucani, Médard, M. and Stojanovic, M. , “Random Linear Network Coding For Time Division Duplexing: Energy Analysis”, *ICC Communication Theory Workshop*, June 2009\*\*
195. C. Ng, Médard, M. and Ozdaglar, A., “Completion Time Minimization and Robust Power Control in Wireless Packet Networks”, *ICC Communication Theory Workshop*, June 2009
196. D. Lucani, Médard, M. and Stojanovic, M., “Completion Time Minimization and Robust Power Control in Wireless Packet Networks”, *ICC Communication Theory Workshop*, June 2009\*\*
197. G. Weichenberg, Chan, V.W.S. and Médard, M., “Performance Analysis of Optical Flow Switching”, *ICC Optical Networks*, June 2009\*\*
198. R. Koetter, Effros, M. and Médard, M., “On a theory of network equivalence”, *Information Theory Workshop*, June 2009
199. D. Lucani, Fitzek, F., Médard, M. and Stojanovic, M., “Network Coding For Data Dissemination: It Is Not What You Know, But What Your Neighbors Don’t Know”, **invited** paper, *RAWNETs*, June 2009\*\*
200. J.-K. Sundararajan, Sadeghi, P. and Médard, M., “A feedback-based adaptive broadcast coding scheme for minimizing in-order delivery delay”, *Netcod*, June 2009\*\*
201. D. Lucani, Médard, M. and Stojanovic, M., “Broadcasting in time-division duplexing: A random linear network coding approach”, *Netcod*, June 2009\*\*

## Publications of Muriel Médard

202. M. Kim, Médard, M., Barros, J. and Koetter, R., “An Algebraic Watchdog for Wireless Network Coding”, *ISIT*, July 2009\*\*
203. D. Lucani, Médard, M. and Stojanovic, M., “Random Linear Network Coding for Time-Division Duplexing: Queueing Analysis”, *ISIT*, July 2009\*\*
204. G. Maierbacher, Barros, J., and Médard, M., “Practical Source-Network Decoding”, **invited paper**, *IEEE International Symposium on Wireless Communication Systems*, September 2009
205. S. Feizi and Médard, M., “When Only Sources Need to Compute, On Functional Compression in Tree Networks”, *2009 Annual Allerton Conference on Communication, Control, and Computing*, October 2009\*\*
206. D. Lucani, Médard, M. and Stojanovic, M., “Sharing Information in Time-Division Duplexing Channels: A Network Coding Approach”, *2009 Annual Allerton Conference on Communication, Control, and Computing*, October 2009\*\*
207. M. Langberg and Médard, M., “The Multiple Unicast Network Coding Conjecture”, *2009 Annual Allerton Conference on Communication, Control, and Computing*, October 2009
208. D. Lucani, Médard, M. and Stojanovic, M., “Random Linear Network Coding for Time-Division Duplexing: Field Size Considerations”, *IEEE Globecom 2009 Communication Theory Symposium*, November-December 2009\*\*
209. D. Traskov, Médard, M., Sadeghi, P. and Koetter, R., “Joint Scheduling and Instantaneously Decodable Network Coding”, *IEEE Globecom 2009 Communication Theory Symposium*, November-December 2009
210. S. Feizi, and Médard, M., “Multi-Functional Compression with Side Information”, *IEEE Globecom 2009 Communication Theory Symposium*, November-December 2009\*\*
211. I. Maric, Goldsmith, A., and Médard, M., “Analog Network Coding in the High SNR Regime”, **invited paper**, *ITA Workshop*, January 2010
212. F. Zhao and Médard, M. “On analyzing and improving COPE performance”, **invited paper**, *ITA Workshop*, January 2010\*\*
213. S. Huang, Ramamoorthy, A., and Médard, M., “Minimum cost content distribution using network coding: Replication vs. coding at the source nodes”, *ITW 2010*
214. M.-J. Montpetit and Médard, M., “Video-centric Network Coding Strategies for 4G Wireless Networks: An Overview”, *2010 IEEE Consumer Communications and Networking Conference*.
215. R. S. Thinniyam, Kim, M., Médard, M., O'Reilly, U.-M., “Network Coding in Optical Networks with O/E/O Based Wavelength Conversion”, *OFC 2010\*\**
216. D. Traskov, Lenz, J., Ratnakar, N. and Médard, M., “Asynchronous Network Coded Multicast”, *2010 ICC Communication Theory Symposium*
217. A. ParandehGheibi, Ozdaglar, A., Effros, M. and Médard, M., “Optimal Reverse Carpooling Over Wireless Networks - A Distributed Optimization Approach”, *CISS 2010\*\**
218. M. Kim, Lucani, D., Shi, X., Zhao, F. and Médard, M., “Network coding for multi-resolution multicast”, *INFOCOM 2010\*\**
219. I. Maric, Goldsmith, A. and Médard, M., “Analog Network Coding in the High-SNR Regime”, *IEEE Wireless Network Coding Workshop 2010*
220. A. ParandehGheibi, Sundararajan J.-K. and Médard, M., “Collision Helps - Algebraic Collision Recovery for Wireless Erasure Networks”, *IEEE Wireless Network Coding Workshop 2010\*\**
221. C. Chang, Effros, M., Ho, T., Médard, M. and Leong, B., “Issues in Peer-to-Peer Networking: a Coding Optimization Approach”, *NETCOD 2010*

Publications of Muriel Médard

222. N. Fawaz and Médard, M., “On the Non-Coherent Wideband Multipath Fading Relay Channel”, *ISIT 2010*
223. D. Lucani, Médard, M. and Stojanovic, M., “Systematic Network Coding for Time-Division Duplexing”, *ISIT 2010\*\**
224. A. ParandehGheibi, Médard, M., Shakkottai, S. and Ozdaglar, A., “Avoiding Interruptions - QoE Trade-offs in Block-coded Streaming Media Application”, *ISIT 2010\*\**
225. W.-Y. Shin, Lucani, D., Médard, M., Stojanovic, M. and Tarokh, V., “Multi-hop Routing is Order-optimal in Underwater Extended Networks”, *ISIT 2010*
226. S. Feizi and Médard, M., “Some Cases Where Finding the Minimum Entropy Coloring of a Characteristic Graph is a Polynomial Time Problem”, *ISIT 2010\*\**
227. M. Kim, Médard, M. and Barros, J., “A Multi-Hop Multi-Source Algebraic Watchdog”, *ITW*, August 2010\*\*
228. A. Kim, and Médard, M., “Scalar-linear Solvability of Matroidal Networks Associated with Representable Matroids”, **invited paper**, Turbo Coding 2010\*\*
229. M. Kim and Médard, M., “Algebraic Network Coding Approach to Deterministic Wireless Relay Network”, *Allerton Conference*, October 2010\*\*
230. S. Feizi, Goyal, V.K., and Médard, M., “Locally Adaptive Sampling”, *Allerton Conference*, October 2010\*\*
231. S. Feizi, Médard, M., and Effros, M., “Compressive Sensing over Networks”, *Allerton Conference*, October 2010\*\*
232. A. ParandehGheibi, Sundararajan, J.-K., and Médard, M., “Acknowledgement Design for Collision-Recovery-Enabled Wireless Erasure Networks”, *Allerton Conference*, October 2010\*\*
233. A. Rezaee, Zeger, L., and Médard, M., “Multi Packet Reception and Network Coding”, *MILCOM 2010*, November 2010\*\*
234. F.H. Fitzek, Pedersen, M., Heide, J., and Médard, M., “Network Coding: Applications and Implementations on Mobile Devices”, *Proceedings of the 5th ACM workshop on Performance monitoring and measurement of heterogeneous wireless and wired networks*, 2010
235. P. Oliveira, Lima, L., Vinhoza, T. T., Barros, J., and Médard, M., “Trusted Storage over Untrusted Networks”, *IEEE Globecom 2010 - Communication Theory Symposium*
236. M. Thakur and Médard, M., “On Optimizing Low SNR Wireless Networks Using Network Coding”, *IEEE Globecom 2010 - Communication Theory Symposium*
237. D. Lucani, Médard, M., and Stojanovic, M., “Online Network Coding for Time-Division Duplexing”, *IEEE Globecom 2010 - Symposium on Selected Areas in Communications\*\**
238. A. ParandehGheibi, Médard, M., Ozdaglar, A., and Shakkottai, S., “Access-Network Association Policies for Media Streaming in Heterogeneous Environments”, *CDC 2010\*\**
239. D. Lucani and Médard, M., “Bridging Tree Bridging Tree-Packing and Network Coding: An Information Flow Approach-Packing and Network Coding: An Information Flow Approach”, *CISS 2011*
240. J. Heide, Pedersen, M., Fitzek, F., and Médard, M., “On Code Parameters and Coding Vector Representation for Practical RLNC”, *ICC Communication Theory Workshop 2011*
241. M. Heindlmaier, Lun, D. S., Traskov, D., and Médard, M., “Wireless Inter-Session Network Coding – An Approach Using Virtual Multicasts”, *ICC Communication Theory Workshop 2011*



Publications of Muriel Médard

242. M. Thakur, Fawaz, N., and Médard, M., “Optimal Relay Location and Power Allocation for Low SNR Broadcast Relay Channels”, *INFOCOM 2011*
243. S. Shi, Médard, M., and Lucani, D., “When Both Transmitting and Receiving Energies Matter: An Application of Network Coding in Wireless Body Area Networks”, *NC-Pro Workshop 2011\*\**
244. A. Kulkarni, Heindlmaier, M., Traskov, D., Médard, M., and Montpetit, M.-J., “An Implementation of Network Coding with Association Policies in Heterogeneous Networks”, *NC-Pro Workshop 2011*
245. G. Angelopoulos, Médard, M., and Chandrakasan, A. P., “Energy-Aware Hardware Implementation of Network Coding”, *NC-Pro Workshop 2011\*\**
246. M.J. Montpetit and Médard, M., “Community Viewing meets Network Coding: New Strategies for Distribution, Consumption and Protection of TV Content”, *2<sup>nd</sup> W3C Web and TV Workshop*, February 2011.
247. M. Khabbazi, Kuhn, F., Lynch, N., Médard, M., and ParandehGheibi, A., “MAC Design for Analog Network Coding”, *FOMC 2011\*\**
248. M. Kim, Médard, M., and Barros, J., “Modeling Network Coded TCP Throughput: A Simple Model and its Validation”, *Valuetools 2011\*\**
249. H. Seferoglu, A. Markopoulou and Médard, M., “NCAPQ: Network Coding-Aware Priority Queueing for UDP Flows over COPE”, *NETCOD 2011*
250. M. Thakur, N. Fawaz, and Médard, M., “On the Geometry of Wireless Network Multicast in 2-D”, *ISIT 2011*
251. B. Haeupler and Médard, M., “One Packet Suffices - Highly Efficient Packetized Network Coding With Finite Memory”, *ISIT 2011\*\**
252. A. Kim and Médard, M., “Computing Bounds on Network Capacity Regions as a Polytope Reconstruction Problem”, *ISIT 2011\*\**
253. W. Guo, Cai, N., Shi, S., and Médard, M., “Localized Dimension Growth in Random Network Coding: A Convolutional Approach”, *ISIT 2011\*\**
254. S. Feizi, and Médard, M., “A Power Efficient Sensing/Communication Scheme: Joint Source-Channel-Network Coding by Using Compressive Sensing”, **invited paper**, *Allerton Conference 2011\*\**
255. N. Fawaz, and Médard, M., “A Converse for the Wideband Relay Channel with Physically Degraded Broadcast”, **invited paper**, *Information Theory Workshop 2011*
256. B. Haeupler, Kim, M. and Médard, M., “Optimality of Network Coding with Buffers”, *Information Theory Workshop 2011\*\**
257. F. du Pin Calmon, Médard, M., and Effros, M., “Equivalent Models for Multi-terminal Channels”, *Information Theory Workshop, 2011\*\**
258. S. Feizi, Angelopoulos, G., Goyal, V., and Médard, M., “Energy-Efficient Time-Stampless Adaptive Nonuniform Sampling”, **invited paper**, *IEEE Sensors Conference 2011\*\**
259. J. Cloud, Zeger, L., and Médard, M., “Effects of MAC Approaches on Non-monotonic Saturation Behavior with COPE - a Simple Case Study”, *MILCOM 2011\*\**
260. A. Rezaee, Zeger, L., and Médard, M., “Speeding Multicast by Acknowledgment Reduction Technique (SMART)”, **invited paper**, *Asilomar Conference on Signals, Systems and Computers 2011\*\**
261. A. Rezaee, Zeger, L., and Médard, M., “Speeding Multicast by Acknowledgment Reduction Technique (SMART)”, *Globecom Communication Theory 2011\*\**
262. W.-Y. Shin, Lucani, D., Médard, M., Stojanovic, M., Tarokh, V., “Information-Theoretic Limits of Dense Underwater Networks”, *Asilomar Conference on Signals, Systems and Computers 2011*

Publications of Muriel Médard

263. S. Feizi, Goyal, V., and Médard, M., “Time-Stampless Adaptive Nonuniform Sampling for Stochastic Signals”, *ICASSP 2012*\*\*
264. A. Fu, P. Sadeghi, P., and Médard, M., “Delivery Delay Analysis of Network Coded Wireless Broadcast Schemes”, *WCNC 2012*
265. P. Babarazi, Tapolcai, J., Ho, P.-H., and Médard, M., “Optimal Dedicated Protection Approach to Shared Risk Link Group Failures using Network Coding”, *ICC ONS 2012*
266. M.J. Montpetit and Médard, M., “Community Viewing meets Network Coding: New Strategies for Distribution, Consumption and Protection of TV Content”, *2<sup>nd</sup> W3C Web and TV Workshop, 2012*
267. I. Abou-Fayçal and Médard, M., “Optimal Placement of Uncoded Memoryless Regenerators for OOK Signaling”, *ICT 2012*
268. S. Feizi, Lucani, D., and Médard, M., “Tunable Sparse Network Coding”, *invited paper, IZS 2012*\*\*
269. L. Sassatelli and Médard, M., “Inter-session Network Coding in Delay-Tolerant Networks Under Spray-and-Wait Routing”, *WiOpt 2012*
270. W. Zeng, Ng, C., and Médard, M., “Joint Coding and Scheduling Optimization in Wireless Systems with Varying Delay Sensitivities”, *SECON 2012*\*\*
271. F. Zhao, Médard, M., Hundebøll, M., Ledet-Pedersen, J., Rein, S.A., and Fitzek, F.H.P. “Comparison of Analytical and Measured Performance Results on Network Coding in IEEE 802.11 Ad-Hoc Networks”, *NETCOD 2012*\*\*
272. M. Thakur, Fawaz, N., and Médard, M., “Reducibility of Joint Relay Positioning and Flow Optimization Problem”, *ISIT 2012*
273. B. Haeupler, Cohen, A., Avin, C., and Médard, M., “Network Coded Gossip With Correlated Data”, *ISIT 2012*\*\*
274. T. Wang, L. Zheng, and Médard, M., “Joint Design of Multi-resolution Codes and Intra/Inter-layer Network Coding”, *Asilomar Conference on Signals, Systems and Computers 2012*\*\*
275. M. Rambeloarison, Feizi, S., Angelopoulos, G., and Médard, M., “Empirical Rate-Distortion Study of Compressive Sensing-based Joint Source-Channel Coding”, *Asilomar Conference on Signals, Systems and Computers 2012*\*\*
276. K. Censor-Hillel, Haeupler, B., Lynch, N., and Médard, M., “Bounded-Contention Coding for Wireless Networks in the High SNR Regime”, *DISC 2012*\*\*
277. U. Ferner, Médard, M., and Soljanin, E., “Toward Sustainable Networking: Storage Area Networks with Network Coding”, *Allerton Conference 2012*\*\*
278. W. Zeng, Cadambe, V. and Médard, M., “An Edge Reduction Lemma and Application to Linear Network Coding for Two-Unicast Networks”, *Allerton Conference 2012*\*\*
279. F. du Pin Calmon, Médard, M., Zeger, L., Barros, J., Christiansen, M., Duffy, K., and Tessaro, S., “Lists that are smaller than their parts: A coding approach to tunable secrecy”, *Allerton Conference 2012*\*\*
280. S. Teerapittayanon, Fouli, K., Médard, M., Montpetit, M.-J., Shi, X., Seskar, I., and Gosain, A., “Network Coding as a WiMAX Link Reliability Mechanism”, *MACOM 2012*\*\*
281. K. Fouli, Casse J., Sergeev, I., Médard, M., and Maier, M., “Broadcasting XORs: On the Application of Network Coding in Access Point-to-Multipoint Networks”, *MACOM 2012*\*\*
282. S. Teerapittayanon, Fouli, K., Médard, M., Montpetit, M.-J., Shi, X., Seskar, I., and Gosain, A., “Network Coding as a WiMAX Link Reliability Mechanism: An Experimental Demonstration”, *MACOM 2012*\*\*
283. W. Zeng, du Pin Calmon, F., and Médard, M., “When P2P Meets the CDN - a Network Coding Approach to Integrating the Two”, **invited paper**, *ITA 2013*\*\*

\*\* Outgrowth of supervised student research

Publications of Muriel Médard

284. P. Karafillis, Fouli, K., ParandehGheibi, A., and Médard, M., “An Algorithm for Improving Sliding Window Network Coding in TCP”, *CISS 2013*\*\*
285. A. Zhang, S. Feizi, and Médard, M., “A Network Flow Approach in Cloud Computing”, *CISS 2013*\*\*
286. G. Giacaglia, Shi, X., Kim, M., Lucani, D. E., and Médard, M., “Systematic Network Coding with the Aid of a Full-Duplex Relay”, *ICC CT 2013*\*\*
287. G. Angelopoulos, Paidimarri, A., Chandrakasan, A. P., and Médard, M., “Experimental Study of the Interplay of Channel and Network Coding in Low Power Sensor Applications”, *ICC WCS 2013*\*\***(winner of a Best Paper Award)**
288. T. Pinto, Lucani, D., and Médard, M., “On Identifying which Intermediate Nodes Should Code in Multicast Networks”, *ICC CT 2013*
289. J. Du, Médard, M., Xiao, M., and Skoglund, M., “Lower Bounding Models for Wireless Networks”, *ISIT 2013*
290. M. Christiansen, Duffy, K., du Pin Calmon, F., and Médard, M., “Brute force searching, the typical set and Guesswork”, *ISIT 2013*
291. V. Abdrashitov, Médard, M., and Moshkovitz, D., “Matched Filter Decoding of Random Binary and Gaussian Codes in Broadband Gaussian Channel”, *ISIT 2013*\*\*
292. W. Zeng, Cadambe, V., and Médard, M., “On the Tightness of the Generalized Network Sharing Bound for the Two-Unicast-Z Network”, *ISIT 2013*\*\*
293. E. Gourdin, Wang, Y., and Médard, M., “Strategic Network Coding - How Much and Where to Code to Obtain Most of the Benefits”, *NETCOD 2013*
294. J. Cloud, du Pin Calmon, F., Zeng, W., Pau, G., Zeger, L., and Médard, M., “Multi-Path TCP with Network Coding for Mobile Devices in Heterogeneous Networks”, *VTC 2013*\*\*
295. H. Swaminathan, Grgicak, C. M., Médard, M., and Lun, D. S., “NOCI: A Computational Tool to Infer the Number of Contributors to a Forensic DNA Samples”, *39<sup>th</sup> Northeastern Association of Forensic Scientists*
296. K. Rowan, Wellner, G., Lun, D. S., Médard, M., and Grgicak, C. M., “NOCI: A High-Accuracy Computational Method for Determining the Number of Contributors in an STR DNA Profile”, *Twenty-fifth International Symposium on Human Identification*
297. K. Rowan, Wellner, G., Lun, D. S., Médard, M., and Grgicak, C. M., “Characterization of the Sources of Peak Height Uncertainty Resulting from Ordinary Alterations During Forensic DNA Processing: Examining Validation Schemes for the Calibration of NOCI”, *Twenty-fifth International Symposium on Human Identification and 39<sup>th</sup> Northeastern Association of Forensic Scientists*
298. X. Chen, Jukan, A., and Médard, M., “A Novel Network Coded Parallel Transmission Framework for High-Speed Ethernet”, *Globecom 2013 - Optical Networks and Systems Symposium*
299. M. Kim, Klein, T., Soljanin, E., Barros, J., and Médard, M., “Trade-off Between Cost and Goodput in Wireless: Replacing Transmitters with Coding”, *MONAMI 2013*\*\***(winner of the Best Paper Award)**
300. M. Christiansen, Duffy, K., du Pin Calmon, F. and Médard, M., “Guessing a Password over a Wireless Channel: On the Effect of Noise Non-uniformity”, **invited paper**, *Asilomar Conference on Signals, Systems and Computers 2013*\*\*
301. U. Ferner, Wang, T., and Médard, M., “Network Coded Storage with Multi-resolution Codes”, **invited paper**, *Asilomar Conference on Signals, Systems and Computers 2013*\*\*
302. I. Sergeev, Barros, J., and Médard, M., “Melting Pad: A Secure Efficiently Decodable Coding Scheme”, **invited paper**, *MILCOM 2013*\*\*

## Publications of Muriel Médard

303. du Pin Calmon, F., Varia, M., Médard, M., Christiansen, M., Duffy, K. R. and Tessaro, S., “Bounds on Inference,” *51st Annual Allerton Conference on Communication, Control, and Computing, 2013*\*\*
304. U. Ferner, Long, Q., Pedroso, M., Voloch, L., and Médard, M., “Building a Network Coded Storage Testbed for Data Center Energy Reduction”, *SustainIT 2013*\*\*
305. J. Casse and Médard, M., “Only the Source's and Sink's Neighborhood Matters: Convergence Results for Unicast and Multicast Connections on Random Graphs and Hypergraphs”, *Valuetools 2013*
306. S. Norsworthy, Lun, D.S., Swaminathan, H., Médard, M., and Grgicak, C. M., “Characterizing Rates of Allelic Dropout and the Impact on Estimating the Number of Contributors”, *66<sup>th</sup> Annual AAFS Scientific Meeting*
307. Y. Xu, Yeh, E., and Médard, M., “Approaching Gaussian Relay Network Capacity in the High SNR Regime: End-to-End Lattice Codes”, *WCNC 2014*
308. J. Cloud, Leith, D, and Médard, M. “Network Coded TCP (TCP) Performance over Satellite Networks”, *SPACOMM 2014*\*\*
309. J. Bilbao, Calvo A., Armendariz, I., Crespo, P., and Médard, M., “Reliable Communications with Network Coding in Narrowband Powerline Channel”, *IEEE International Symposium on Power Line Communications (ISPLC) 2014 (winner of the Best Paper Award)*
310. J. Heide, Pedersen, M., Fitzek, F, and Médard, M., “A Perpetual Code for Network Coding”, *VTC Spring 2014*
311. G. Angelopoulos, Médard, M. and Chandrakasan, A., “PRAC: Exploiting Partial Packets without Cross-layer or Feedback Information”, *IEEE ICC Wireless Communications Symposium 2014*\*\*
312. M. Kim, Cloud, J., ParandehGheibi, A., Urbina, L., Fouli, K., Leith, D., and Médard, M., “Congestion Control for Coded Transport Layers”, *IEEE ICC Communication QoS, Reliability and Modeling Symposium 2014* \*\*
313. F.H.P. Fitzek, Toth, T., Szabados, A., Pedersen, M.V., Lucani, D.E., Sipos, M., Charaf, H., and Médard, M., “Implementation and Performance Evaluation of Distributed Cloud Storage Solutions using Random Linear Network Coding”, *IEEE CoCoNet 2014*
314. J. Du, Médard, M., Skoglund, M., and Xiao, M., “Scalable Upper Bounding Models for Wireless Networks”, *ISIT 2014*
315. P. Babarcsi, Tapolcai, J., Rónyai, L., Pasic, A., Médard, M., and Cadambe, V., “Resilient Flow Decomposition of Unicast Connections with Network Coding”, *ISIT 2014*
316. M. Schwartz and Médard, M., “Quasi-linear Network Coding”, *NETCOD 2014*
317. U. Ferner, Sadeghi, P., Aboutorab, N., and Médard, M., “Network coding for distributed storage systems and caching”, *NETCOD 2014*\*\*
318. S. Feizi, Lucani, D., Sørensen, C., Makhdoumi, A., and Médard, M., “Tunable Sparse Network Coding for Multicast Networks”, *NETCOD 2014*\*\*
319. P. Pahlevani, Cabrera, J.A., Lucani, D.A., Fitzek, F.H.P., and Médard, M., “On the Packet Loss Correlation in Wireless Mesh Networks: Channel Models and Practical Schemes”, *WiMobCity 2014*
320. D. Adams, Du, J., Médard, M., and Yu, C., “Delay Constrained Throughput-Reliability Tradeoff in Network-Coded Wireless Systems”, *Globecom Communications Theory Symposium 2014*\*\* (**finalist for Best Paper Award**)
321. U. Mönich, Grgicak, G., Cadambe, V., Wu, Y., Wellner, G., Duffy, K., and Médard, M., “A Signal Model for Forensic DNA Mixtures”, *Asilomar Conference on Signals, Systems and Computers 2014*

## Publications of Muriel Médard

322. W. Zeng, Cadambe, V., and Médard, M., “A Recursive Coding Algorithm for Two-unicast-Z Networks”, *ITW 2014*\*\*
323. U. Speidel, Gulliver, A. T., Makhmoudi, A., and Médard, M., “Using T-Codes as Locally Decodable Source Codes”, *ITW 2014*
324. A. Makhmoudi, Salamatian, S., Fawaz, N., and Médard, M., “From the Information Bottleneck to the Privacy Funnel”, *ITW 2014*\*\*
325. du Pin Calmon, F., Varia, M., and Médard, M., “An Exploration of the Role of Principal Inertia Components in Information Theory”, *ITW 2014*\*\*
326. V. Cadambe, Lynch, N., Médard, M., and Musial, P., “A Coded Shared Atomic Memory Algorithm for Message Passing Architectures”, *IEEE International Symposium on Network Computing and Applications (NCA14) 2014 (winner of the Best Paper Award)*
327. A. Angelopoulos, Chandrakasan, A., and Médard, M., “Energy Savings via Harnessing Partial Packets in Body Area Networks”, *Bodynets 2014*\*\*
328. G. Bianchi, Bracciale, L., Censor-Hillel, K., Lincoln, A., and Médard, M., “The One-out-of-k retrieval Problem and Linear Network Coding”, *4th International Castle Meeting on Coding Theory and Applications, 4ICMCTA*\*\*
329. J. Cloud, Leith, D., and Médard, M., “A Coded Generalization of Selective Repeat ARQ”, *INFOCOM 2015*\*\*
330. X. Shi and Médard, M., “A Proposal for Network Coding with the IEEE 802.15.6 Standard”, *SENSORNETS 2015*\*\*
331. Q. Wang, Cadambe, V., Jaggi, S., Schwartz, M., and Médard, M., “File Updates Under Random/Arbitrary Insertions And Deletions”, *ITW 2015*
332. F. du Pin Calmon, Varia, M., Médard, M., Christiansen, M., Duffy, K., Zeger, L., and Barros, J., “Revisiting the Shannon Theory approach to cryptography”, *International Conference on Information-Theoretic Security*\*\*
333. G. Angelopoulos and Médard, M., “Performance Limits of Sparse Support Recovery Algorithms”, *European Wireless 2015*\*\*
334. J. Krisglund, Hanson, J., Lucani, D., Fitzek, F.H.P., and Médard, M., “Network Coded Software Defined Networking: Design and Implementation”, *European Wireless 2015*
335. S. Feizi, Duffy, K., Kellis, M., and Médard, M., “Network Infusion to Infer Information Sources in Networks”, *ICCSS 2015*\*\*
336. A. Makhdoumi, Huang, S.-L., Médard, M., and Polyanskiy, Y., “On Locally Decodable Source Coding”, *ICC CTS 2015*\*\*
337. Y. Cui, Médard, M., Yeh, E., Leith, D., and Duffy, K., “Optimization-Based Linear Network Coding for General Connections of Continuous Flows”, *ICC CTS 2015 (winner of an ICC Best Paper Award)*
338. Du, J., Sweeting, N., Adams, D., and Médard, M., “Network Reduction for Coded Multiple-hop Networks”, *ICC CTS 2015*
339. G. Angelopoulos, Médard, M., and Chandrakasan, A., “AdaptCast: An Integrated Source to Transmission Scheme for Wireless Sensor Networks”, *ICC WS 2015*\*\*
340. X. Chen, Jukan, A., and Médard, M., “Linear Network Coding and Parallel Transmission Increase Fault Tolerance and Optical Reach”, *ICC ONS 2015 (winner of an ICC Best Paper Award)*
341. J. Du, Adams, A., and Médard, M., “Cross-Layer Design of Network-Coded Transmission with a Delay Constraint”, *SPAWC 2015*\*\*
342. A. Beirami, Calderbank, R., Duffy, K., and Médard, M., “Computational Security Subject to Source Constraints, Guesswork and Inscrutability”, *ISIT 2015*

## Publications of Muriel Médard

343. S. Salamatian, Médard, M., and Telatar, E., “A Successive Description of Monotone-chain Polar Codes for Slepian-Wolf Coding, and its Application to Separation of Source and Network Coding”, *ISIT 2015*
344. F. du Pin Calmon, Makhdoumi, A., and Médard, M., “Fundamental Limits of Perfect Privacy”, *ISIT 2015\*\**
345. A. Makhdoumi, du Pin Calmon, F., and Médard, M., “Forgot Your Password: Correlation Dilution”, *ISIT 2015\*\**
346. F. Gomez-Cuba, Du, J., Médard, M., and Erkip, E., “Bandwidth Occupancy of Non-Coherent Wideband Fading Channels”, *ISIT 2015*
347. U. Ferner, Soljanin, E., and Médard, M., “Why Reading Patterns Matter in Storage Coding and Scheduling Design”, *IEEE Cloud 2015\*\**
348. U. Spiedel, Cocker, E., Vingelmann, P., Heide, J., and Médard, M., “Can Network Coding Bridge the Digital Divide in the Pacific?”, *Netcod 2015*
349. J. Cloud, and Médard, M. “Network Coding over SATCOM - Lessons Learned”, *WiSATS 2015\*\**,
350. A. Salimi, Médard, M. and Cui., R., “On the Representability of Integer Polymatroids: Applications in Linear Code Construction”, *Allerton 2015*
351. P. Narayana Moorthy and Médard, M. “Communication Cost for Updating Functions when Message Updates are Sparse: Connections to Maximally Recoverable Codes”, **invited paper**, *Allerton 2015*
352. A. Beirami, Calderbank, R., Christiansen, M., Duffy, K, Makhdoumi, A., and Médard, M., “A Geometric Perspective on Guesswork”, *Allerton 2015*
353. V. Abdrashitov and Médard, M., “Durable Network Coded Distributed Storage”, *Allerton 2015\*\**
354. Y. Cui, Médard, M., Pandya, D., Yeh. E., Leith, D., and Duffy, K., “A Linear Network Code Construction for General Integer Connections Based on the Constraint Satisfaction Problem”, *Globecom 2015 CTS*
355. E. Kantor, Konwar, K., Lynch, N., Médard, M., Narayana Moorthy, P., and Shvartsman, A., “Storage Optimized Data Atomic Algorithms for Handling Erasures and Errors in Distributed Storage Systems”, accepted to *30th IEEE International Parallel & Distributed Processing Symposium*
356. X. Liu, Médard, M., and Li, W., “Network-Coding-based Multipath Transmission in Software Defined Fiber-Wireless Networks”, *NetSoft 2016*
357. C. Hellge and Médard, M., “Multi-code distributed storage”, *IEEE Cloud 2016*
358. N. Raviv, Yaakobi, E., and Médard, M., “Coding for Locality in Reconstructing Permutations”, *ISIT 2016*
359. J. Du, Médard, M., and Shamai, S., “Cost of Local Cooperation in Hierarchical Virtual MIMO Transmission Schemes”, *ITW 2016*
360. Q. Wang, Médard, M., and Skoglund, M., “Efficient Compression Algorithm For File Updates Under Random Insertions And Deletions” *ITW 2016*
361. R. Alkurd, Shubair, R. M., and Médard, M., “Optimum HDAF Relay-Assisted Combining Scheme with Relay Decision Information”, *VTC 2016*
362. P. Narayana Moorthy, Abdrashitov, V., and Médard, M., “A Generalization of Regenerating Codes for Clustered Storage Systems”, **invited paper**, *Allerton 2016\*\**
363. R. MacDonald and Médard, M., “Obfuscating Poisson & Gaussian Data Using a Rotation in the Complex Plane”, accepted to *Asilomar 2016*
364. V. Abdrashitov and Médard, M., “Staying Alive - network coding for data persistence in volatile networks”, **invited paper**, accepted to *Asilomar 2016\*\**
365. S. Salamatian, Cohen, A., and Médard, M., “Efficient Coding for Multi-source Networks using Gacs-Korner Common Information”, accepted to *ISITA 2016\*\**

\*\* Outgrowth of supervised student research

## Publications of Muriel Médard

366. D. Whisman, Médard, M., Kusuma, J, and Croux, A., “Benefits of Opportunistic Routing, Implicit Acknowledgments, and Network Coding on a Linear Broadcast Network”, accepted to *Netcod 2016*\*\*
367. J. Cloud and Médard, M., “Multi-Path Low Delay Network Codes”, accepted to *Globecom 2016*\*\*.

### 3. Other publications:

1. Book Chapter: M. Médard and Lumetta, S.S., “Network Reliability and Fault Tolerance,” *Wiley Encyclopedia of Engineering*, Editor: J.G. Proakis.
2. Book Chapter: D.S. Lun, Ho, T., Ratnakar, N., Koetter, R., and Médard, M., “Network Coding in Wireless Networks -A survey of techniques for efficient operation of coded wireless packet networks,” *Cooperation in Wireless Communications: Principles and Applications*, Springer, Editors: F. Fitzek and M. Katz, 2007.
3. Book Chapter: F. Zhao, Médard, M., Lun, D.S., and Ozdaglar, A., “Minimum Cost Subgraph Algorithms for Static and Dynamic Multicasts with Network Coding”, *Directions in Wireless Communications*, Springer, Editor: Vahid Tarokh, 2009.

### 4. Internal Memoranda:

4. H. Wang, Modiano, E., and Médard, M., “Partial Path Protection for WDM Networks-End-to-end Recovery using Local Failure Information,” Technical Report LIDS-2517, September 2001.
5. D.S. Lun, Médard, M., Ho, T., and Koetter, R., “Network Coding with a Cost Criterion,” Technical Report LIDS-P-2584, April 2004.
6. J.K. Sundararajan, Zhao, F., Youssef-Massaad, P.G., and Médard, M., “A Modification to RED AQM for CIOQ Switches,” Technical Report LIDS-2585, April 2004.
7. J. K. Sundararajan, Deb, S., and Médard, M., “To Copy or not to Copy: Extending the Birkhoff-von Neumann Switching Strategy to Multicast Switches,” Technical Report LIDS-2624, August. 2004.
8. D. S. Lun, Ratnakar, N., Koetter, R., Médard, M., Ahmed, E., and Lee, H., “Achieving Minimum Cost Multicast: A Decentralized Approach Based on Network Coding,” Technical Report LIDS-P-2629, September 2004.
9. G. Weichenberg, Chan, V.W.S., and Médard, M., “On the Capacity of Optical Networks: A Framework for Comparing Different Transport Architectures,” Technical Report LIDS-P-2655, MIT LIDS, July 1 2005.
10. S. Jaggi, Langberg, M., Katti, S., Ho, T., Katabi, D., and Médard, M., “Resilient Network Coding in the Presence of Byzantine Adversaries”, MIT-CSAIL-TR-2006-053, August 1, 2006
11. K. Censor-Hillel, Haeupler, B., Lynch, N., and Médard, M., “Bounded Contention Coding for Wireless Networks in the High SNR Regime”, MIT-CSAIL-TR-2012-026, August 2012
12. V. Cadambe, Lynch, N., Médard, M., and Musial, P., "Coded Emulation of Shared Atomic Memory for Message Passing Architectures", MIT-CSAIL-TR-2013-016, July 2013.
13. S. Feizi, K. Duffy, M. Kellis; M. Medard, "Network Infusion to Infer Information Sources in Networks", MIT CSAIL, 2014-12-02.

\*\* Outgrowth of supervised student research

## Publications of Muriel Médard

1. Invited Lectures:
2. Spring 1997 “Optical Network Security,” Steering Committee Lecture, MIT Lincoln Laboratory
3. Fall 1997 “Spreading and Recovery: topics in communications,” **invited** seminar, University of California, Berkeley
4. Fall 1997 “Topics in Communications,” **invited** seminar, University of Illinois Urbana-Champaign
5. Spring 1998 “Topics in Optical Network Security,” **invited** seminar, University of Maryland and MIT
6. Spring 1998 “Security in Optical Networks,” **invited** seminar, Rensselaer Polytechnic Institute
7. Fall 1998 “Restoration in Optical Networks,” Coordinated Science Laboratory (CSL) Seminar, University of Illinois, Urbana-Champaign
8. Fall 1998 “Spreading in Time-varying Channels,” **invited** seminar, University of Michigan
9. Spring 1999 “Capacity of Time-varying Channels with Side Information,” **invited** seminar, University of Michigan and MIT
10. Summer 1999 “Capacity of Time-varying Channels with Side Information,” **invited** seminar, Northwestern University
11. Fall 1999 “An Overview of Security for Optical Networks,” Coordinated Science Laboratory (CSL) Seminar, University of Illinois Urbana-Champaign
12. Fall 1999 “Capacity of Fast Time-varying Channels with Side Information,” Coordinated Science Laboratory (CSL) Seminar, University of Illinois Urbana-Champaign
13. Fall 2000 “Restoration in Optical Networks,” **invited** seminar, Carnegie-Mellon University
14. Spring 2001 M. Médard, “Robustness and Recovery in Optical Networks,” **invited** presentation, *IEEE Gigabit Networking Workshop*, also
15. **invited** seminar, George Washington University
16. May 2001 “Some different aspects of adaptive coding for wireless communications,” **invited** seminar, Stanford University also
17. **invited** seminar, Lucent Bell Labs (June 2001)
18. June 2001, “Robust Optical Communications,” **invited** seminar, Lucent Bell Labs
19. May 2001 and August 2001 “Robustness and Security in Optical Networks,” presentation for AFOSR URI kickoff at Stanford University and AFOSR program review at Wright-Patterson Air Force Base
20. October 2001 “Some New Directions in Communications and Networking,” **invited** tutorial, Federal Communications Commission
21. December 2001, “Network Coding for Capacity and Robustness,” **invited** talk at the DIMACS (Center for Discrete Mathematics and Theoretical Computer Science at Rutgers University) Workshop on Codes and Complexity
22. December 2001, “Optical Network Security,” **invited** talk to the DARPA Information Assurance for Optical Networks (OpticIA) Workshop



## Publications of Muriel Médard

23. March 2002, “When the Physical Layer Matters -a perspective on networking aspects of wireless communications,” **invited** talk, Information Science and Technology (ISAT) study group for DARPA on “Robust Networks for Critical Missions and Critical Infrastructure”
24. April 2002, “Some Aspects of Robustness in Wireless Networks,” **invited** seminar, University of Massachusetts, Amherst
25. June 2002, “Overview of New Results in Optical Access Networks Robustness,” **invited** Photonics Series seminar at the University of Illinois Urbana-Champaign
26. October 2002, M. Médard and Kim, M., “A Bound on Backup Path Lengths Using a Random Graph Approach,” **invited** paper, IEEE Annual Computer Communications Workshop, 2002
27. October 2002, “Network Coding and Network Management-Towards Fundamental Limits?” **invited** seminar, Cornell University, also
28. **Invited** seminar, Boston University
29. November 2002, “Security in Optical Networks,” **invited** briefing to the Assistant Secretary of Defense (C3I) (Highland Forum), at the Pentagon (Washington, D.C.)
30. Spring 2003, “Network Coding: Towards an Unified View of Routing, Network Management, Coding and Compression?” **invited** seminar, Applied Mathematics Department, Brown University, also
31. **Invited** seminar, ECE Department, Georgia Tech, also **invited** IBM Lecture, Notre Dame University
32. Fall 2004, “Network Coding: Towards an Unified View of Routing, Recovery, Coding and Compression?” **invited** seminar, Harvard University
33. Spring 2004, “Coding for Networks,” **invited** presentation, the Annual Lee Center Workshop (Caltech's Lee Center for Advanced Networking), in which 4 guest speakers present to Caltech faculty, students and alumni
34. May 2004, D.S. Lun, M. Médard, T. Ho, Koetter, R., “Network Coding with a Cost Criterion,” **invited** talk, Communication Theory Workshop
35. May 2004, “Network Coding: an Introduction,” a one-day course given to the Centre for Wireless Communications at the University of Oulu, Finland (co-taught with Ralf Koetter of UIUC)
36. August 2004, “Towards a Random, Distributed Operation of Networks,” **invited** presentation, Lucent Bell Labs, also Colloquium, Northeastern University, October 2004
37. October 2004, “Byzantine Modification Detection in Multicast Networks Using Randomized Network Coding,” **invited** seminar, Northeastern University
38. October 2004, “On the Implications of Optical Splitting for Multicasting,” **invited** presentation, 19th IEEE Annual Computer Communications Workshop
39. December 2004, “Network Coding,” one-day tutorial at the IEEE Global Telecommunications Conference (Globecom) (co-taught with Ralf Koetter of UIUC and Phil Chou of Microsoft)
40. January 2005, “An Overview of the Use of Distributed Mechanisms in Network Coding,” **invited** presentation, DIMACS (Center for Discrete Mathematics and Theoretical Computer Science at Rutgers University) Workshop on Network Coding
41. April 2005. “Network Coding for Cost, Reliability and Ease of Management,” **invited** seminar, Yale University

## Publications of Muriel Médard

42. June 2005, “Network Coding in Wireless Networks,” **Plenary Speaker**, IEEE Workshop on Signal Processing Advances in Wireless Communications (SPAWC), New York
43. June 2005, “Network Coding -an Introduction,” **Invited Seminar**, Seminaire Euronetlab, Universite Pierre et Marie Curie, Paris
44. June 2005 “Network Coding for Cost, Reliability and Ease of Management,” **Invited Seminar**, Ecole Nationale Supérieure de Telecommunications de Bretagne, aJoint IEEE Comsoc & IT-Lab Conference on Communications and Coding, also
45. June 2005, **Invited Seminar**, ENST Paris, also
46. July 2005, **Invited Seminar**, Ecole Polytechnique Federale de Lausanne
47. September 2005, “On Distributed Optimization for Networks,” **Keynote Speaker**, Mobile Information and Communications Systems Scientific Conference, Loewenberg, Switzerland
48. September 2005, “Network Coding,” one-day **Tutorial** at the IEEE International Symposium on Information Theory (co-taught with Ralf Koetter of UIUC and Phil Chou of Microsoft)
49. December 2005, “Wireless Network Coding,” Signal Processing/ Communications **Invited Seminar**, University of California at Los Angeles
50. April 2006, “Wireless Network Coding,” **Invited Seminar**, University of Texas at Austin,
51. May 2006, “Network Coding-Where to Now?” **Plenary Speaker**, IFIP Networking 2006, also **Invited Seminar**, May 2006, University of Porto, Portugal
52. June 2006, “Network Coding-An Overview,” **Invited Seminar**, Ecole Nationale Supérieure de Télécommunications de Bretagne, Rennes
53. June 2006, “Distributed Network Coding for Sensor Networks,” **Tutorial**, International Workshop on Wireless and Ad Hoc Networks 2006
54. August 2006, “Network Coding: A Tutorial,” **Tutorial**, University of California at San Diego, ITA Center (co-taught with Ralf Koetter of UIUC)
55. August 2006, “Network Coding for Wireless Networks,” **Invited Seminar**, University of Southern California
56. March 2007, “Network Coding-an Optimization View,” **Plenary Speaker**, Conference on Information Sciences and Systems, Johns Hopkins University, also
57. April 2007 **General Dynamics Distinguished Lecture Series**, University of Michigan also
58. **Invited Seminar** Intel Workshop on Wireless Communications (last two cancelled because of sickness)
59. May 2007, “Some Interesting Directions in Network Coding,” **Invited Seminar**, workshop on Algorithms, Inference and Statistical Physics, Santa Fe, NM, organized by the Los Alamos National Laboratory and the Center for Nonlinear Studies
60. May 2007, “Introduction to Network Coding,” **Tutorial**, IFIP Networking 2007, Atlanta, Georgia, also Workshop on Network Coding, Hong Kong, January 2008
61. May 2007, “On Security Aspects of Network Coding,” **Invited Seminar**, IEEE Communications Theory Workshop, Sedona, Arizona
62. September 2007, “Le codage sur réseaux - théorie, applications et nouvelles frontières”, **Plenary Speaker**, GRETSI 2007, Troyes, France

## Publications of Muriel Médard

63. September 2007, “New Directions in Wireless Communications,” **Gilbreth Lecture** to the National Academy of Engineering
64. January 2008, “On Theory and Practice in Network Coding”, **Keynote Lecture**, Coordinated Science Laboratory at UIUC 3rd annual Student Conference in the areas of Control, Communications and Signal Processing.
65. February 2008, “Delay and throughput in network coding”, **Invited Seminar**, Iowa State University
66. June 2008, “Network Coding”, **Invited Course**, First School of Information Theory, organized by the IEEE Information Theory Society at Penn State
67. June 2008, “Network coding and security”, **Keynote Address**, IEEE Workshop on Wireless Network Coding, San Francisco
68. June 2008, “An Introduction to Network Coding”, **Short Course** given at Bretagne Telecom, France
69. June 2008, “Le codage sur réseaux – principes et applications”, **Invited Seminar**, at the PRACOM conference, Bretagne Telecom, France
70. September 2008, “Introduction to Network Coding”, **Tutorial** at the IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC) 2008, Cannes, France, co-taught with Ralf Koetter of TUM
71. September 2008, “How to Get There from Here”, **Presentation** to the Networking Networking (N<sup>2</sup>) Women Forum, Cannes, France
72. September 2008, “On the intersection between queueing and information theory - some new results”, **Invited Seminar** at Eurecom, France, also
73. November 2008, **Invited Seminar**, University of Illinois, Chicago (November 2008), also
74. February 2009, **Invited Seminar**, Harvard, also
75. April 2009, **Invited Seminar**, University of California San Diego, also
76. May 2009, Ohio State University **Invited Seminar**, also
77. July 2009, **Invited Seminar** at KAIST, Korea **Invited Lecture** at CTTC under Catalonia’s Invited Lectureship Program, Barcelona, Spain (July 2009)
78. May 2009, “On the Confluence of Information Theory and Networking”, **Plenary Lecture**, Conftele, Portugal
79. May 2009, “Network coding and security - new paradigms”, **Keynote Address**, European Wireless Conference, Aalborg, Denmark
80. May 2009, “Network coding”, tutorial, Muriel Médard, Joerg Widmer and Frank H.P. Fitzek, European Wireless Conference, Aalborg, Denmark
81. September 2009, “Bringing network coding into the network”, **Keynote Address**, International Teletraffic Conference, Paris, France
82. January 2010, “Some New(ish) Results in Information Theory”, **Invited Lecture**, Programme on New Topics at the Interface Between Probability and Communications , Newton Institute for Mathematics, Cambridge, UK

Publications of Muriel Médard

83. January 2010, “Bringing Network Coding into the Network”, **Invited Lecture**, Computer Laboratory Systems Research Group Seminar, Cambridge, UK
84. February 2010, “Some New Directions in Information Theory”, **Invited Lecture**, Workshop on Frontiers of Controls, Games, and Network Science with Civilian and Military Applications, Austin, TX
85. May 2010, “On the practice of network coding. Bringing network coding into the network.” **Keynote Lecture**, 5th IEEE International Symposium on Wireless Pervasive Computing, Modena, Italy
86. July 2010, “When network coding met the network”, **Keynote Lecture**, International Conference on Infocomm Technology, Hanan, China
87. July 2010, “Some Perspectives on Scaling”, **Plenary Presentation**, JTEN, MIT Lincoln Laboratory
88. November 2010, “Some New Directions for Network Coding in Content Distribution”, **invited lecture**, Alcatel-Lucent
89. June 2011, “Applications du codage réseau pour la vidéo”, **Invited Seminar**, Digiteo, Supelec, France
90. June 2011, “Network coding for quality of experience”, **Keynote Lecture**, Annual GTTI Meeting, Italy, also
91. **Invited lecture**, EPFL Summer Research Institute, Switzerland
92. July 2011, “Wireless Networks in the Low and High SNR Regimes”, **Invited Lecture**, ITMANET Information Exchange Meeting, Stanford
93. August 2011, “The High, the Low and the Ugly - on the Capacity of Wireless Networks”, **invited lecture**, Hamilton Institute Network Science Workshop, Ireland.
94. September 2011, “Going Beyond Hybrid ARQ - Joint Channel and Network Coding for Body Area Networks”, **E-seminar** to FRCP and Semiconductor Research Council
95. February 2012, “When Coding Met Video QoE”, **Keynote Lecture**, IEEE International Conference on Computing, Networking and Communications, also
96. **Invited Lecture**, Netapp
97. February 2012, “When Coding Met QoE - Making Network Coding Go From Theory to Practice”, **invited lecture**, University of Pennsylvania Communications Networks Seminar Series, also
98. **Accenture Lecture Series**, SRM University (Chennai), NMIMS (Mumbai), Accenture Mumbai, Accenture Hyderabad, Accenture Bangalore 3, Accenture Bangalore 6 (March 2012)
99. May 2012, “An Introduction to Network Coding”, **doctoral short course**, University of Modena
100. June 2012, “Network Coding: From Theory to Practice”, **tutorial**, ICC 2012, jointly with Frank Fitzek
101. June 2012, “Stitching it all together - Using Network Coding in Heterogeneous Settings”, **Keynote Lecture**, *Workshop on Cooperative and Cognitive Mobile Networks*, also **invited lecture**, CISCO (September 2012), also

Publications of Muriel Médard

102. November 2012, presentation for **MIT ILP Research and Development Conference**, also
103. December 2012, **Invited seminar**, UCSB ECE Department also **ECE Colloquium**, University of Wisconsin Madison (February 2013)
104. June 2012, “Network resource use and Video QoE – a coding perspective”, **Keynote Lecture**, *Workshop on Realizing Advanced Video Optimized Wireless Networks, ICC*
105. September 2012, “When Coding Met QoE - Making Network Coding go from Theory to Practice”, **Keynote Lecture**, *Workshop on Challenges and Solutions for the Mobile Video Operator*
106. September 2012, “Wireless Network Coding – to PHY or not to PHY?”, **Plenary Lecture**, IEEE Vehicular Technology Conference, Quebec City, Canada
107. October 2012, “Jubilee Panel: The Ecology of Communication, Control, and Computing Research and Education”, **Panelist**, Allerton Conference
108. November 2012, “Network Coding – Theory and Applications”, **Ph.D. Short Course**, Aalborg University (co-taught with Frank Fitzek and Morten Pedersen)
109. November 2012, “To PHY or not to PHY - on the Capacity of Wireless Networks at Different Levels of SNR”, **D.W. Weeks Lecture**, MIT Department of Mathematics
110. February 2013, “Network Coding – A Rapid Tutorial”, **Tutorial**, 1st Workshop on Cognition and Control, University of Florida
111. February 2013, “Joint Source Channel and Network Coding - A Simple Ad-hoc Approach Inspired from Compressed Sensing”, **Invited Lecture**, 1st Workshop on Cognition and Control, University of Florida
112. February 2013, “A Bandwidth Breakthrough Recent developments in RLNC Technology”, **Webinar** to PCIA’s Innovation & Technology Council
113. March 2013, “Putting Algebra in the Network”, **Invited Lecture**, Brown University Symposium for Undergraduates in the Mathematical Sciences (SUMS)
114. April 2013, “Career Paths, Life Paths”, **Panelist**, MIT GWAMIT (Graduate Women at MIT) Empowerment Conference
115. April 2013, “Network Coding – Where Should it Go?”, **Keynote Lecture**, IEEE/IFIP Wireless And Mobile Networking Conference, Dubai, also
116. **Invited Presentation**, Ericsson Research Laboratories, June 2013
117. May 2013, “5e forum Science - Recherche – Société”, organized by Le Monde and La Recherche, **Panelist**, Paris
118. June 2013, “Coding for Heterogeneous Networks”, **Keynote Lecture**, Cominlabs Week, Rennes
119. June 2013, “Network Coding”, **Tutorial**, ICC 2013, Budapest (co-taught with Frank Fitzek)
120. June 2013, “Clever Coding to Improve Network Performance for Mobile Video”, **Spotlight Presentation**, Technology Review Mobile Summit, San Francisco
121. June 2013, “On the Balance between Network Coding and Physical Layer Coding – Two Case Studies”, **Invited Presentation**, Cisco Laboratories Sunnyvale

## Publications of Muriel Médard

122. June 2013, “Network Coded TCP - a Brief Overview”, **Invited Lecture**, Information Theory Forum, Stanford
123. June 2013, “On managing coding and acknowledgements at the transport layer - a couple of case studies”, **Invited IPG Seminar**, EPFL
124. July 2013, “Placing network coding in the network”, **Keynote Lecture**, ICCCN 2013, Dubai
125. August 2013, “Some Recent Topics for Coding in Secrecy”, **Invited Talk**, Dagstuhl Workshop on Coding, Germany
126. August 2013, “On the interaction between network coding and the physical layer”, **Plenary Lecture**, ISWCS 2013, Ilmenau, Germany
127. September 2013, “Network coded TCP for a faster Internet”, **Vice-Chancellor’s Lecture**, University of Auckland, New Zealand
128. October 2013, **panelist** for “Sustainability & ICT”, at the Telecommunications Industry Association Conference, Washington, D.C.
129. October 2013, “Placing network coding in the network”, **Hitachi Distinguished Lecture**, University of Oklahoma
130. November 2013, **Panelist**, “Fundamental performance limits for mobile ad-hoc networks”, MILCOM, San Diego
131. November 2013, “Network coding - where should it go?”, **Invited Seminar**, Cornell Tech, New York
132. December 2013, “Network Coding”, **Doctoral Course at University of Aalborg**, co-taught with Frank Fitzek, Daniel Lucani, Morten Pedersen
133. December 2013, “Performance Metrics and Protocols for Data Centers and SANs in Multimedia”, **Invited Talk**, DIMACS Workshop on Algorithms for Green Data Storage, Rutgers University
134. January 2014, “Some Recent Topics in Coding for Secrecy”, **Invited Talk**, Second Workshop on Cognition and Control, University of Florida
135. February 2014, “On the interaction between network coding and the physical layer - information theoretic results and a case study”, **Plenary Lecture, ITA**, also **SILO Invited Lecture**, University of Wisconsin (February 2014), also
136. **Charles River Information Day Invited Presentation** (April 2014)
137. February 2014, “Some case studies of random network coding in distributed storage”, **Invited Lecture**, Qualcomm Research Center
138. April 2014, “Placing Algebra into the Network - Network Coding”, **IEEE Vehicular Technology Society Distinguished Lecture**, Rutgers University.
139. August 2014, “Network Coding”, **Doctoral Course** at University of Aalborg
140. August 2014, “Using Random Network Coding in Dynamic Environments”, **Invited Netapp Faculty Fellow Talk**, Netapp
141. September 2014, “Applications of random linear network coding (RLNC) to satellite communications”, **tutorial**, 7th Advanced Satellite Multimedia Systems Conference (ASMS) and 13th Signal Processing for Space Communications Workshop (SPSC)

## Publications of Muriel Médard

142. September 2014, “Separating the errors from the network – some implications of equivalence theory on network coding”, **Invited Talk**, 4th International Castle Meeting on Coding Theory and Applications, 4ICMCTA
143. October 2014, “Placing Algebra in the Network”, **Boston Seminar Series**, run by the MIT Alumni Club
144. November 2014, panelist at the MIT Path of Professorship Workshop, Microsoft Center
145. November 2014, “Making networks better - from information theory to chips”, **Invited Seminar** at Harvard University
146. February 2015, “Implementation considerations for network coding in sensor networks,” **Keynote Lecture**, PECCS 2015 and SENSORNETS 2015, Angers, France
147. February 2015, Member of the Panel at the Doctoral Presentation Sessions, PECCS 2015 and SENSORNETS 2015, Angers, France
148. February 2015, “Using random linear network coding in dynamic storage environments”, **Invited Seminar**, Engineering Department, Cambridge University, also
149. **IEEE Vehicular Technology Society Distinguished Lecture**, University of Manitoba, Winnipeg, Canada
150. April 2015, “Placing algebra in the network”, **IEEE Signal Processing and Communication Chapter Lecture**, Khalifa University
151. April 2015, “Stormy Clouds - Security in Distributed Cloud Systems”, **Invited Seminar** at Princeton University, also
152. **Invited Lecture** Alcatel-Lucent Bell Labs, New Jersey (May 2015), also
153. **Keynote Lecture**, Science and Information Conference. London, UK (July 2015), also
154. **Invited Lecture**, Annual September Meeting of the Irish Mathematical Society (August 2015) also
155. **Keynote Lecture** IEEE Local Computer Networks Conference (October 2015)
156. April 2015 “How New Cloud Networking, “Big Data”, and Wireless Communications May Affect Your Security, Privacy, and Surveillance – or Not”, **Tutorial**, The American College of Family Trial Lawyers, Washington, D.C.
157. May 2015, “Two Recent Information Theoretic Variations on the Theme of Patterns in Security”, **Pattern Theory Lunch Seminar Series**, Applied Mathematics Department, Brown University, also
158. Advanced Networking Colloquium Distinguished Lecture Series, University of Maryland College Park (February 2016) also
159. **Invited Lecture**, “Two Recent Information Theoretic Variations on the Theme of Patterns in Security”, Colorado State University (April 2016) also
160. **Plenary Presentation**, International Symposium on Turbo Codes & Iterative Information Processing, Brest, France (September 2016)
161. May 2015, “Network and Physical Layer Coding in Wireless Networks”, **Keynote Speech**, European Wireless Conference, Budapest
162. June 2015, “Network Coding: From Theory to Practice”, **tutorial**, ICC 2015, London, UK (given with Frank Fitzek).

Publications of Muriel Médard

163. August 2015, “Some Recent Applications of Information Theory to Surveillance, Security and Privacy”, **Distinguished Speaker Talk**, Complex and Adaptive Systems Laboratory, University College Dublin
164. August 2015. “Some Recent results on the Use of Network Coding in Dynamic Clouds”, **Invited Lecture**, Trinity College, Dublin
165. January 2016, **Invited Talk**, 4<sup>th</sup> Workshop on Cognition and Control, University of Florida
166. April 2016, **Invited Lecture**, “The Coding Matrix Reloaded”, First Shannon Conference on the Future of the Information Age, Nokia
167. April 2016, “Network coding - a personal account of combining theory and practice”, **University Distinguished Lecture Series in Information Sciences and Technology**, Colorado State, also
168. **Mercer Lecture**, RPI, (May 2016), also
169. **Plenary Lecture**, IEEE IFIP Networking (May 2016)
170. June 2016, **Plenary Lecture**, “Network Coding as a 5G Key Enabling Technology”, Seventeenth International Symposium on a World of Wireless, Mobile and Multimedia Networks, Workshop on Fifth Generation Wireless: From Bits to Packets, Coimbra, Portugal
171. September 2016, “Coding for Delay Reduction”, **Plenary Presentation**, 5G Day, Dresden, Germany
172. December 2016, **Plenary Speaker**, IEEE Globecom.



## Theses Supervised by Muriel Medard

### Summary

|                       | Total | Completed | In Progress |
|-----------------------|-------|-----------|-------------|
| Bachelor              | 0     | 0         | 0           |
| Master of Engineering | 19    | 17        | 2           |
| Master of Science     | 25    | 24        | 1           |
| Engineer              | 0     | 0         | 0           |
| Doctoral              |       |           |             |
| As Supervisor         | 26    | 18        | 8           |
| As Reader             | 47    | 43        | 4           |

### Bachelor's Theses

None

### Master's of Engineering Theses

Zheng, Changqing, "Optimum Spreading Bandwidth for DS-CDMA on Time and Frequency Fading Channels," May 2002

Rettig, Pascal, "Transmit Simulation and Receive Optimization for 802.11b Networks" (6-A student at Qualcomm), May 2002

Le Cocq, Cécile, "Delay Improvements from Multiple Wavelengths in an Optical Folded Bus," September 2003

Choute, Clifford, "Performance of Random Network Coding for Data Dissemination," (co-supervised with Supratim Deb), June 2005

Lee, Anna, "Simplified Random Network Codes for Multicast Networks," June 2005

Tang, Jianlong, "Secure Network Coding with a Cost Criterion," June 2006

Ebad Ahmed, "Economic Aspects of Network Coding", (co-supervised with Asuman Ozdaglar and Atilla Eryilmaz), June 2007

Minji Kim, "Network Coding for Speed-up in Switches," August 2007

Kim, Anthony, "On Network Coding Capacity - Matroidal Networks and Network Capacity Region", September 2010 (co-supervised with Una-May O'Reilly)

Teerapittayanon, Au, "Performance Enhancements in Next Generation Wireless Networks Using Network Coding: A Case Study in WiMAX", May 2012 (co-supervised with Marie-Jose Montpetit and Kerim Fouli)

Zhang, Amy, "A Functional Flow Framework for Cloud Computing", May 2012

Rambeloarison, Muriel, "Empirical Rate-Distortion Study of Compressive-Sensing based Joint Source-Channel Coding", May 2012

## Theses Supervised by Muriel Medard

Urbina, Leo, “Applying Network Coding to TCP”, May 2012 (co-supervised with Minji Kim)

Colosimo, Joseph, “chanem: A Doppler-Shifting Channel Emulator”, May 2013 (co-supervised with Matthew Kercher of MIT Lincoln Laboratory)

Sergeev, Ivan, “Network Coding for Anonymous Broadcast”, May 2013

Josephson, Colleen, “Anonymity Properties of Two Network Coded Gossip Protocols “, August 2014

Yu, Qian, “Finding the Optimal Demodulator Under Implementation Constraints”, (co-supervised with Jason Pearce of Maxim Integrated), June 2015

Gurram, Neil, started June 2015 (co-supervised with Ken Duffy of Maynooth University)

Tasnim, Sayeed, started September 2015.

### Master's of Science Theses

Saengudomlert, Poompat, “Analysis and Detection of Jamming Attacks in an All-optical Network,” June 1998 (co-supervised with Robert G. Gallager)

Huang, Jianyi, “Capacity of Time-slotted ALOHA Systems,” June 2000, University of Illinois Urbana-Champaign (co-supervised with Sean P. Meyn)

He, Wenbo, “Heuristic Algorithms for Failure Recovery in Mesh Networks,” August 2000, University of Illinois Urbana-Champaign

Wang, Hung Jen, “Routing Policy on Robustness in Optical Networks,” March 2002 (co-supervised with Eytan Modiano)

Libarikian, Ari, “Robustness of Bus Overlays in Optical Networks,” April 2002, **winner of a MIT Masterworks (one of 9 in EECS)**

Coleman, Todd, “Trade-off Between Power Consumption and Delay in Wireless Packetized Systems,” April 2002, **winner of the Morris J. Levin Award (First Prize) at the MIT Masterworks**

Lun, Desmond, “Error Exponent for Multipath Fading Channels: Strong Coding Theorem,” September 2002 (co-supervised with Ibrahim Abou-Fayçal)

Weichenberg, Guy, “High-Reliability Architectures for Networks Under Stress,” June 2003 (co-supervised with Vincent Chan)

Kim, Minkyu, “Robustness in Large-Scale Random Networks,” June 2003

## Theses Supervised by Muriel Medard

Ray, Siddharth, “Achievable Rates Over Bursty Multiple-Access Noise-Free Channels,” September 2003 (co-supervised with Jinane Abounadi)

Youssef-Massaad, Pamela, “Impact of processing energy on the capacity of wireless channels,” started Fall 2003 (co-supervised with Lizhong Zheng)

Sundararajan, Jay Kumar, “Extending the Birkhoff-von Neumann Switching Strategy to Multicast Switching” June 2005 (co-supervised with Supratim Deb), **winner of a Morris J. Levin Award at the MIT Masterworks**

Jing, Sheng, “On Sounding in Wideband Channels,” June 2006, (co-supervised with Lizhong Zheng)

Doshi, Vishal, “Functional Compression: Theory and Applications”, February 2008 (co-supervised with Devavrat Shah)

ParandehGhebi, Ali, “Fair Resource Allocation in Multiple Access Channels”, June 2008 (co-supervised with Asuman Ozdaglar)

Shi, Shirley, “Joint Base-Calling of Two DNA Sequences with Factor Graphs”, September 2009 (co-supervised with Desmond Lun from the Broad Institute)

Feizi-Khankandi, Soheil, “Network Functional Compression”, June 2010, **Ernst Guillemin SM Thesis Second Prize**

Cloud, Jason, “Cross-Layer Design with Multi-Packet Reception, MAC, and Network Coding in Multi-Hop Networks”, June 2011 (co-supervised with Linda Zeger from MIT Lincoln Laboratory)

Arman Rezaee, Network Coding, Multi-Packet Reception, and Feedback: Design Tools for Wireless Broadcast Networks”, August 2011 (co-supervised with Linda Zeger from MIT Lincoln Laboratory)

Angelopoulos, Georgios, “Energy-Aware Network Coding Circuit and System Design”, June 2011 (co-supervised with Anantha Chandrakasan)

Zeng, Weifei, “Coding and Scheduling Optimization over Packet Erasure Broadcast Channels”, January 2012

Wang, Tong (Ada), “Joint Design of Multi-resolution Codes and Intra/Inter-layer Network Coding”, May 2012 (co-supervised with Lizhong Zheng)

Makhdoumi Kankhani, Abbasali, “Locally Decodable Source Coding”, May 2013 (co-supervised with Yury Polyanskiy)

Adams, David, “A Delay-Constrained Cross-Layer Model Using Network Coding”, June 2014 (co-supervised with Chris Yu at Draper Labs and Jinfeng Du)

Whisman, Daniel, started Fall 2014.

## Theses Supervised by Muriel Medard

### Engineers Theses

None

### Doctoral Theses, Supervisor

Ho, Tracey, “Networking from a Network Coding Perspective,” May 2004. Committee: David Karger, Ralf Koetter (UIUC), Michelle Effros (Caltech), **received an Honorable Mention from the George M. Sprowls Award for the best doctoral theses in computer science**

Peranginangin, Nathanael, “On Capacity of Relay Networks with Finite Memory Relays,” September 2004. Committee: Robert G. Gallager, Ralf Koetter (UIUC), Vincent Chan.

Luo, Cheng, “Communication for Wideband Fading Channels: on Theory and Practice,” (co-supervised with Lizhong Zheng), October 2005. Committee: Greg Wornell, Vincent Chan, Dennis Goeckel (University of Massachusetts Amherst).

Coleman, Todd, “Low-Complexity Approaches to Distributed Data Dissemination,” November 2005. Committee: John Tsitsiklis, Ralf Koetter (UIUC), Michelle Effros (Caltech), Andrea Goldsmith (Stanford).

Lun, Desmond, “Efficient Operation of Coded Packet Networks,” June 2006. Committee: John Tsitsiklis, Ralf Koetter (UIUC), Michelle Effros (Caltech).

Ray, Siddharth, “Energy-Efficient Multiple Antenna Communication”, (co-supervised with Lizhong Zheng), August 2006. Committee: Pierre Moulin (UIUC), Pramod Viswanath (UIUC).

Kim, Minkyu, “Evolutionary Approaches Toward Practical Network Coding (co-supervised with Una-May O’Reilly), September 2008. Committee: Michelle Effros (Caltech).

Weichenberg, Guy, “Design and Analysis of Optical Flow Switched Networks” (co-supervised with Vincent Chan), January 2009. Committee: Eric Swanson (independent consultant).

Sundararajan, Jay-Kumar, “On the Role of Feedback in Network Coding”, (co-supervised with Devavrat Shah), August 2009. Committee: Michel Goemans.

Sheng, Jing, “Towards Unifying Multi-Resolution and Multi-Description - A Distortion-Diversity Perspective”, September 2009, (co-supervised with Lizhong Zheng), Committee: Vahid Tarokh (Harvard).

Zhao, Fang, “Distributed Control of Coded Networks”, October 2009. Committee: Asuman Ozdaglar and Desmond Lun (Rutgers University)

Lucani, Daniel, “Network Coding for Delay Challenged Environments” (co-supervised with Milica Stojanovic (Northeastern University)), March 2010. Committee: Vincent Chan.

Kim, Minji, “Network Coding for Robust Wireless Networks”, December 2011. Committee: Dina Katabi and João Barros (University of Porto)

ParandehGheibi, Ali, “Metrics, Fundamental Trade-offs and Control Policies for Delay-sensitive Applications in Volatile Environments”, (co-supervised with Asu Ozdaglar), December 2011. Committee: Stephen Boyd (Stanford) and R. Srikant (UIUC).

## Theses Supervised by Muriel Medard

Shi, Shirley, “Energy Aware Network Coding in Wireless Networks”, August 2012.  
Committee: Anantha Chandrakasan and Dina Katabi.

Bernhard Haeupler, “Probabilistic Techniques for Distributed Information Dissemination” (co-supervised with David Karger and Jonathan Kelner), May 2013. Committee: Madhu Sudan and Robert Tarjan (Princeton), **received the 2014 Distributed Computing Dissertation Award, sponsored jointly by the ACM Symposium on Principles of Distributed Computing (PODC) and the EATCS Symposium on Distributed Computing (DISC)**

Ulric Ferner, “Toward sustainable networking: Coded storage and high-traffic networks”, May 2014. Committee: David Karger, Parastoo Sadeghi (Australian National University), Emina Soljanin (Alcatel-Lucent Bell Labs).

Calmon du Pin, Flavio, “ Information-Theoretic Metrics for Security and Privacy” (co-supervised with Yury Polianskiy), August 2015. Committee: Ken Duffy (Maynooth University, Ireland), Shafi Goldwasser, Mayank Varia (Boston University).

Soheil Feizi, (co-supervised with Manolis Kellis) “On the Analysis of Complex Networks: Fundamental Limits, Scalable Algorithms, and Applications”, November 2015, Committee: Prof. Ken Duffy (Hamilton Institute, Maynooth University). Brendan Frey (University of Toronto), Ali Jadbabaie (University of Pennsylvania), Robert Nowak (University of Wisconsin-Madison).

Angelopoulos, Georgios, “Improving the reliability and energy efficiency of wireless sensor networks using coding techniques” (co-supervised with Anantha Chandrakasan), December 2015, Committee: Andrea Goldsmith (Stanford).

Zeng, Weifei, “Linear Algebraic Approaches To Coding for Multiple Unicast Networks”, February 2016, Committee: Viveck. R. Cadambe (Penn State), Lihong Zheng, Kannan Ramchandran (Berkeley).

Cloud, Jason, “Increasing Quality of Service Using Transport Layer Coding Over Parallel Heterogeneous Networks”, June 2016, Committee: Vincent Chan, Aradhana Narula-Tam, Douglas Leith (Trinity College).

Abdrashitov, Vitaly, started Fall 2011

Makhmoudi Kankhani, Abbasali, started Fall 2013 (co-supervised with Asuman Ozdaglar)

Salman Salamatian, started Fall 2015.

## Theses Supervised by Muriel Medard

Visotsky, Yevgeny, "Space-time Transmit Precoding and Interference Suppression for a Wireless Downlink," June 2000 (supervised by Upamanyu Madhow), University of Illinois Urbana-Champaign

Abou-Fayçal, Ibrahim, "An Information Theoretic Study of Reduced Complexity Receivers for Intersymbol Interference Channels," January 2001 (supervised by Amos Lapidoth)

Yeh, Edmund, "Successive Decoding in Multiple-user Communications," June 2001 (supervised by Robert G. Gallager)

Klein, Thierry, "Capacity of Gaussian Noise Channels with Side Information and Feedback," June 2001 (supervised by Robert G. Gallager)

Laneman, Nicholas, "Cooperative Diversity in Wireless Networks: Algorithms and Devices," July 2002 (supervised by Greg Wornell)

Roy, Sandip, "Moment Linear Stochastic Systems and Their Applications," June 2003 (supervised by George Verghese)

Yao, Huan, "Efficient Signal, Code, and Receiver Designs for MIMO Communication Systems," June 2003 (supervised by Greg Wornell)

Min, Rex, "Energy and Quality Scalable Wireless Communication," June 2003 (supervised by Anantha Chandrakasan)

Shulman, Nadav, "Communication over an Unknown Channel via Common Broadcasting," July 2003 (supervised by Meier Feder), Tel Aviv University

De Couto, Douglas, "High-Throughput Routing for Multi-Hop Wireless Networks," May 2004 (supervised by Robert Morris)

Huang, Jianyi, "Characterization and Computation of Optimal Distributions for Channel Coding," August 2004 (supervised by Sean Meyn), University of Illinois Urbana-Champaign

Wu, Xin Zhou, "Wireless Communications in the Energy-Limited Regime," October 2004 (supervised by R. Srikant), University of Illinois Urbana-Champaign

Rasala-Lehman, April, "Network Coding," January 2005 (supervised by Madhu Sudan)

Gentry, Sommer, "Dancing Cheek to Cheek: Haptic Communication between Partner Dancers and Swing as a Finite State Machine," June 2005 (supervised by Eric Feron)

Chen, Li-Wei, "A Study on the Tradeoff between Efficient Resource Allocation and Node Complexity in WDM Optical Networks," August 2005 (supervised by Eytan Modiano)

Jaggi, Siddharth, "Design and Analysis of Network Codes," November 2005 (supervised by Michelle Effros), California Institute of Technology

Khalili, Ramin, "On the Properties of the Packet Layer Transmission," December 2005 (supervised by Kaveh Salamatian), Université Pierre et Marie Curie, France

Sicot, Guillaume, "Etude du codage dans l'ADN," June 2006 (supervised by Ramesh Pyndiah), l'Ecole Nationale Supérieure de Télécommunications de Bretagne, France

Sethuraman, Vignesh, "On Non-Coherent Communication over Correlated Fading Channels with Practical Power Constraints," July 2006 (supervised by Bruce Hajek), University of Illinois Urbana-Champaign

## Theses Supervised by Muriel Medard

Ratnakar, Narajan, “On Joint Resource Allocation and Network Coding in Networks of Point to Point Links and on Multicasting in Aref Networks”, August 2006 (supervised by Ralf Koetter), University of Illinois Urbana-Champaign

Miliou, Natalia, “On Error Exponents for Fading Channels and Network Coding for Wireless Networks,” April 2007 (supervised by Amos Lapidoth), ETH Zurich, Switzerland

Piantanida, Pablo, “Multi-User Information Theory: State Information and Imperfect Channel Knowledge,” May 2007 (supervised by Pierre Duhamel), University of Paris-Sud XI (Supélec), France

Edalat, Farinaz, “Real-time Sub-carrier Adaptive Modulation and Coding in Wideband Orthogonal Frequency Division Multiplexing Wireless Systems”, December 2007 (supervised by Charles Sodini)

Wen, Yonggang, “Efficient Fault Management Architecture for Cost-Optimized Dynamic All-Optical Networks: A Systematic Approach”, December 2007 (supervised by Vincent W.S. Chan)

Katti, Sachin, “Network Coded Wireless Architecture”, September 2008 (supervised by Dina Katabi)

Chirawat Kotcharsan, “Robust Joint Transmitter and Receiver Power Allocation for Multi-user Communications”, July 2008 (supervised by Poompat Saengulomlert), Asian Institute of Technology, Thailand

Fawaz, Nadia, “Cooperative Communications for Wireless Ad Hoc Networks”, December 2008 (supervised by Mérouane Debbah and David Gesbert), Eurecom/ Supélec, France

Sundaram, Shreyas, “Linear Iterative Strategies for Information Dissemination and Processing in Distributed Systems”, April 2009 (supervised by Chris Hadjicostis), University of Illinois Urbana-Champaign

Kim, Sang Joon, “Performance bounds for bi-directional relaying protocols”, April 2009 (supervised by Vahid Tarokh), Harvard

Kabat, Andrzej, “Contributions au Codage Correcteur d’Erreurs: Décodage Pondéré des Codes de Reed-Solomon et Codage Distribué pour les Communications Coopératives Sans Fil”, October 2009 (supervised by Ramesh Pyndiah), Bretagne Télécom, France

Mahmino, Ali, “Applications du Codage Réseau aux Architectures aux Garanties de Qualité de Service (QoS)”, February 2010 (supervised by Jérôme Lacan), Université de Toulouse, France

Tirronen, Tuomas, “Fountain Codes: Performance Analysis and Optimisation”, March 2010 (supervised by Jorma Vitarmo), Helsinki University of Technology

Traskov, Danail “Network Coding for Multiple Access”, October 2010 (supervised by the late Ralf Koetter, later by Norbert Hanik), Technical University of Munich

Lima, Luisa, “Network Coding Security Algebraic Properties and Lightweight Solutions”, December 2010 (supervised by João Barros), University of Porto

Tomozei, Dan-Cristian “Distributed Algorithms for Peer-to-Peer Networks”, February 2011 (supervised by Laurent Massoulié), Université Pierre et Marie Curie

## Theses Supervised by Muriel Medard

Fashandi, Shervan “Diversity and Reliability in Erasure Networks: Rate Allocation, Coding, and Routing”, December 2011 (supervised by Amir Khandani), University of Waterloo

Gollakota, Shyamnath, “Embracing Interference in Wireless Systems”, September 2012 (supervised by Dina Katabi)

Xu, YuanYuan , “Issues on Multiple Description Coded Video Communications: Coding, Routing and Scheduling”, September 2012 (supervised by Xhu Ce), Nanyang Technological University

Heidarzadeh, Anoosheh, “Design and Analysis of Random Linear Network Coding Schemes: Dense Codes, Chunked Codes and Overlapped Chunked Codes”, December 2012 (supervised by Amir H. Banihashemi), Carleton University

Wang, Yuhui, “On the Use of Network Coding and Multicast for Enhancing Performance in Wired Networks”, May 2013 (supervised by Eitan Altman, Eric Gourdin and Tijani Chahed), Télécom Paris Sud and Université Pierre et Marie Curie

Thakur, Mohit, “Relay Positioning for Multicast Relay Networks”, March 2014 (supervised by Gerhard Kramer), Technical University of Munich

Medina Ruiz, Hamlet “TCP and Network Coding: Equilibrium and Dynamic Properties”, July 2014 (supervised by Michel Kieffer and Béatrice Pesquet), Université Paris-Sud

Shrestha, Neetya, “Inter-session Network Coding for Delay Tolerant Mobile Social Networks”, April 2015 (supervised by Lucile Sassatelli), Université Nice Sophia Antipolis

Wang, Qiwen, “On Information-Theoretic Limits on Network Error Correction and Fiel Updates”, August 2015 (supervised by Robert Lee and Sid Jaggi), Chinese University of Hong Kong

Swaminathan, Harish, “Interpreting Complex, Low Template Forensic DNA Samples, September 2015 (supervised by Desmond Lun), Rutgers, The State University of New Jersey

Karzand, Mina, (supervised by Lizhong Zheng)

Weiner, Ian, (supervised by Vahid Tarokh), Harvard

Riemensberger, Maximilian Josef, “Submodular Rate Region Models for Multicast Communication in Wireless Networks”, (supervised by Wolfgang Utschik), Technical University of Munich

Anderson, Grant (supervised by Charlie Sodini).



## Postdoctoral Fellows Supervised by Muriel Medard

### Postdoctoral Fellows Supervised

#### Current Postdocs

| <u>Name</u>              | <u>PhD Granting Institution</u> |
|--------------------------|---------------------------------|
| Ahmad Beirami            | Georgia Tech                    |
| Prakash Narayana Moorthy | Indian Institute of Science     |

#### Previous Postdocs

| <u>Name</u>         | <u>Current Title</u>           | <u>Current Employer</u>         |
|---------------------|--------------------------------|---------------------------------|
| Lucille Sasatelli   | Assistant Professor            | Eurecom                         |
| Chris Ng            | Member of Tech. Staff          | Alcatel Lucent Bell Labs        |
| Atilla Eryilmaz     | Associate Professor            | Ohio State University           |
| Siddarth Jaggi      | Assistant Professor            | Chinese University of Hong Kong |
| Supratim Deb        | Member of Tech. Staff          | AT&T Labs                       |
| Ibrahim Abou-Fayçal | Associate Professor            | American Univ. of Beirut        |
| Nadia Fawaz         | Member of Tech. Staff          | Technicolor                     |
| Danail Traskov      | Consultant                     | Bain                            |
| Minji Kim           | Member of Tech. Staff          | Oracle                          |
| Ali ParandehGheibi  | Member of Tech. Staff          | Plexxi                          |
| Kerim Fouli         | VP Technology                  | CodeOn                          |
| Viveck Cadambe      | Assistant Professor            | Penn State                      |
| Ullrich Mönich      | Researcher                     | TUM                             |
| Ying Cui            | Assistant Professor            | Shanghai Jiao Tong University   |
| Jinfeng Du          | Member of Tech. Staff          | Nokia.                          |
| Jason Cloud         | Manager<br>Sound/Systems Group | Dolby Laboratories              |