



DIRECTOR'S MESSAGE

The Research Laboratory of Electronics (RLE), founded in 1946, is the Institute's first interdisciplinary research laboratory. RLE grew out of the wartime MIT Radiation Laboratory and was formed to bring together physicists and electrical engineers to work on problems in electromagnetic radiation, circuits, and specialized vacuum tubes. Over the years, RLE's research interests have branched in many directions, so that today it is the most diverse of MIT's interdisciplinary research laboratories, with more than 60 affiliated faculty pursuing groundbreaking research across seven research themes. Their achievements, during the 2009-2010 academic year, are described in this Progress Report.

As usual, the Laboratory's faculty research staff, and students have made many outstanding accomplishments during the past year, whose details can be found in the chapters that follow. So I will take this opportunity to highlight some things that are less obvious from or not explicitly included in what follows. The 2009-2010 academic year witnessed the creation of RLE's seventh research theme: Energy, Power, and Electromagnetics. In part, this theme

was created to highlight the work being done in the Center for Excitonics, a \$19 million dollar Energy Frontier Research Center sponsored by the Department of Energy and directed by Professor Marc Baldo. However this new theme also best represents the preponderance of research being pursued by members of the Laboratory for Electromagnetic and Electronic Systems (LEES), whose eight faculty, their research staff, and students became part of RLE on 1 July 2009. The smooth incorporation of LEES into RLE, during the 2009-2010 academic year, was due in large part to the efforts of Professor Joel Schindall, previously Acting Director of LEES who served as Associate Director of RLE for that transition year. In keeping with RLE's practice of choosing Associate Directors who have taken on major research leadership roles in particular RLE themes, Professor Baldo succeeded Professor Schindall as RLE Associate Director on 1 July 2010.

I will close this message on a personal note. On 30 June 2011 I will complete my second five year term as RLE Director, and I have informed Vice President Claude Canizares that I will not be serving a third term. My ten years in RLE Headquarters have passed very quickly, and there has been no end to the great things that have happened in the Laboratory during that time. There has been an extraordinary influx of new faculty, who have brought great enthusiasm and a wealth of new research ideas into the Laboratory. There has been a continuing stream of major new programs, e.g., the W. M. Keck Foundation Center for Extreme Quantum Information Theory, the Interdisciplinary Quantum Information Science and Engineering Program, and the Center for Excitonics are well underway, and M+Visión, a \$14M collaborative program in biomedical imaging sponsored by the Community of Madrid, is just getting underway. RLE faculty have won major awards, a list topped by Professor Wolfgang Ketterle's sharing the 2001 Nobel Prize in Physics for his work on Bose-Einstein condensation. Major space renovations have occurred throughout the buildings that RLE occupies. Our conference facility is the envy of the Institute. That facility, however, brings to mind some of what has been lost during the past decade. Its conference rooms honor the memories of Professor Jonathan Allen, my predecessor as RLE Director who passed away in 2000, and Institute Professor Herman Anton Haus, who died in 2003. Also lost to us during the past decade were former RLE Director Professor Henry J. Zimmermann, former Electrical Engineering Department Head Professor Louis D. Smullin, Professor William F. Schreiber, and Professor Jin Au Kong.

It has been an honor and a privilege for me to serve as RLE Director, and I am confident that my successor will preside over a Laboratory that will achieve even greater heights in the future.

Jeffrey H. Shapiro
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