

) MESSAGE FROM THE DEPARTMENT HEAD

Dear Members of the MIT Physics Community,

A few months as Department Head have taught me that the MIT Physics Department is even greater than the sum of its outstanding faculty, students, staff, alumni and facilities. It is a place where interactions among all the parts give rise to new initiatives in research and education, where renewal keeps us vital, and where excellence begets excellence. This is an exciting place to do physics!

This year has been one of the best ever for our department. *U.S. News and World Report* again rated us the number one physics program, a distinction we have held since 2002. This spring we graduated 88 physics majors, the most since 1979. Last October we dedicated the Green Center for Physics, whose marvelous art and architecture inspire praise from throughout the Institute and beyond. Its chalkboards and open spaces have led to increased interaction among our theoretical community, from senior faculty to first-year graduate students. One outcome is the development of a new undergraduate physics subject, *The Physics of Energy*. **Wati Taylor** and **Bob Jaffe** describe their plans for this course in this issue.

MIT physicists have been in the news—and the popular media—a great deal this past year. Have you downloaded **Walter Lewin's** introductory physics lectures from iTunes U? I recommend them highly, along with the rest of our extensive educational materials online at the OpenCourseware and MITWorld websites.

Two outstanding young experimental condensed matter physicists, **Nuh Gedik** and **Pablo Jarillo-Herrero**, joined our faculty in January. This summer, noted neutrino experimentalist **Janet Conrad** joined our ranks. You can read about them in our **New Faculty** section.

During the last few years we've assembled a group of faculty investigating failed stars and exoplanets—planets around other stars. On page 40, **Sara Seager** writes about the exciting discoveries being made in this field. Also in this issue, **Eric Hudson** discusses his atomic-scale measurements of high-temperature superconductors. In addition to probing the nature of superconductivity in ceramics, Eric is a star teacher in 8.02 TEAL, our active-learning studio version of electricity and magnetism. This spring his achievements were recognized by MIT students with the prestigious Everett Moore Baker Award for Excellence in Undergraduate Teaching.

Our faculty and staff continue to garner awards for their excellence in research, teaching and service. **Marc Kastner** was elected to membership in both the National Academy of Sciences and the American Academy of Arts and Sciences.

Millie Dresselhaus won the Buckley Prize of the American Physical Society for her work on carbon nanotubes and the Oersted Medal of the American Association of Physics Teachers. **Michael Feld** received the Meggers Award of the Optical Society of America and the Martin Luther King, Jr., Achievement Award from the MIT Campus Committee on Race and Diversity. **Christoph Paus**



Justin A. Knight

and **Peter Dourmashkin** shared the Department's Buechner Teaching Award. Christoph was honored for developing a pioneering video-conferencing subject based on physics at the Large Hadron Collider at CERN, while Peter was recognized for his work in 8.01 TEAL, the studio version of classical mechanics. For his excellent statistical mechanics course, **Mehran Kardar** was awarded the School of Science's Excellence in Graduate Teaching prize. Later in this magazine you'll find listings of more honors and awards garnered by our faculty, staff and students.

As strong as our Department is, it must weather serious challenges ahead owing to declining federal research support. My highest priority for fund-raising is to raise enough to support graduate fellowships for every first-year student, with the majority of these endowed to ensure their permanence. Thanks to the generosity of several donors, we were able to offer most of our incoming graduate students a fellowship last year and will do so again this fall. These donors are members of the **Patrons of Physics Fellows**, a society created to recognize the generosity of those friends and alumni who make it possible for the Department to recruit and sustain the very best graduate students with a full fellowship. To increase support in this area, our good friend **George Elbaum** has generously offered to match all new gifts made when a donor joins this society. The continued contribution of our alumni and friends in these endeavors is critical to sustaining our strength. For more information on supporting the Department, please contact our new Director of Development, **Erin McGrath**, at either 617.452.2807 or emcgrath@mit.edu.

Thank you for your interest in and support of MIT Physics. If travel brings you to Cambridge, I encourage you to visit the Department. In the meantime, I welcome your comments to me at physics@mit.edu.

With best regards,

A handwritten signature in cursive script that reads "Edmund Bertschinger".

Edmund Bertschinger
Head, Department of Physics