

Dear Friends of Tufts Physics & Astronomy,

The 2009-2010 academic year has been one of growth, change, and accomplishment in the department. We welcomed two new faculty, Danilo Marchesini (Astronomy) and Cristian Staii (Experimental Condensed Matter Physics), and a new department manager, Shannon Landis, as well as a new department Chair (me); and we celebrated the recognition of faculty, students, and staff with well-deserved awards and honors. Sadly, we also mourned the loss of our colleague, Professor Robert Guertin, who passed away in June 2009. Above all, we continued our twin pursuits of research and education in physics and astronomy with passion, excitement, and a commitment to excellence. This letter briefly summarizes a few of the year's highlights. More information can be found on our website, <http://ase.tufts.edu/physics>.



## A Growing Department



*Assistant Professor Danilo Marchesini* majored in physics at the Università degli Studi di Milan, in 2001. He then moved to Trieste (Italy), where he obtained his Ph.D. in Astrophysics in 2004 at the International School for Advanced Studies (SISSA/ISAS). At the end of 2004, he moved to Yale University's astronomy department for a five-year postdoctoral experience that led to his hire at Tufts University. His research focuses on understanding how galaxies formed shortly after the Big Bang and how their properties evolved with cosmic time. More specifically, he is interested in understanding, from an observational approach, what physical mechanisms (and their relative importance as functions of cosmic time) are responsible in shaping the galaxies as we see them today, almost

14 billion years after the Big Bang. To do this, he searches for galaxies in the early universe and studies their properties, both with imaging and spectroscopy, using space-based telescopes (e.g., the Hubble Space Telescope), as well as the largest ground-based telescopes.

Danilo's is joined by his wife, Maddalena, and his two nineteen-month old boys, Alessandro and Tommaso. He and his wife love sailing, especially racing, which has been their favorite hobby for the past decade. They actually also enjoy all outdoor activities, especially those involving the ocean.

*Assistant Professor Cristian Staii* received his Ph.D. in physics and astronomy in 2005 from the University of Pennsylvania. Before joining the Department of Physics & Astronomy in the School of Arts and Sciences at Tufts, he served as a Postdoctoral Research Associate at Princeton University and the University of Wisconsin-Madison. In 2006, he received the Institute for Complex Adaptive Matter (ICAM) Postdoctoral Fellowship Award. Cristian's areas of research include experimental condensed matter



physics, nanotechnology, and biological physics. Cristian has produced a number of papers that have been published in scientific journals such as *Nano Letters*, *Biomaterials*, and the *Journal of the American Chemical Society*. He also has a patent. Cristian is married and has two little children, a girl and a boy. He enjoys playing soccer, although these days he is playing much less often than in the past.

*Department Manager Shannon Landis* comes to us via Perkins School for the Blind and Harvard School of Public Health, where she served as an administrator for Dean of Faculty Barry R. Bloom. Shannon received her B.A. from the University of Massachusetts Amherst's theater department in 1996 and earned her M.Ed. from Lesley University in 2007. Shannon currently serves on the Board of Directors of a local theater group and sings with a semi-professional, south shore a cappella group titled *Purely Vocals*.

## **News and Events**

### **Institute of Cosmology Celebrates Twenty Years with International Conference**

This past September, seventy of the world's leading cosmologists gathered in Talloires, France for a conference in honor of the 20<sup>th</sup> anniversary of the Tufts Institute of Cosmology. The event, entitled "Challenges in the Theoretical Cosmology" brought together leading researchers in theoretical cosmology to discuss some of the most pressing issues in the field today, including: cosmic strings, eternal inflation, and the landscape.

### **A New Era in High Energy Physics**

*Professors Kris Sliwa and Austin Napier*, along with their students, are among the many physicists celebrating the long-awaited start-up of the Large Hadron Collider (LHC) at CERN in Geneva, Switzerland. After last year's disastrous LHC incident, the repairs were completed on schedule and the accelerator provided its first proton-proton collisions at 900 GeV in December 2009 and reached 7 TeV in March 2010. Our faculty members, along with their students, have long been involved in developing the ATLAS detector, a very large general purpose detector for high energy particle collisions, and are eager to examine the new physics that this unprecedented machine will soon begin to reveal.

### **Unique Summer Program Resounds Eighth Year**

*Professor Peggy Cebe* is gearing up for the department's eighth year of offering a unique summer program in physics research. The six-week program, through the support of the National Science Foundation, offers a small group of DHH science majors (deaf or hard of hearing) the opportunity to participate in a highly integrated classroom and laboratory experience focused on investigating polymeric materials. Students earn academic credit and obtain valuable research experience that strengthens their future careers in science.

### **The Kathryn A. McCarthy Lectureship in Physics**

In April, the department honored *Deborah S. Jin* with the *2010 Kathryn A. McCarthy Lectureship in Physics*. Named in honor of former Tufts Provost and Professor Kathryn A. McCarthy, the Lectureship is awarded every three years and highlights the contributions made by outstanding women physicists.

Dr. Jin, a Fellow of JILA and the National Institute of Standards and Technology and an Adjoint Professor at the University of



Deborah S. Jin (center) meets with the women of the Physics and Astronomy Department of Physics & Astronomy.

Colorado, is one of the world's leaders in the study of the physics of ultracold atoms, including the observation of Bose-Einstein condensation in a gas of fermions. A member of the National Academy of Sciences and a Fellow of the American Academy of Arts and Sciences, Dr. Jin was named to the *Scientific American* 50: Research Leader of the Year (2004), and received the prestigious MacArthur "Genius" Award.

## **A Year of Distinction**

### **Faculty and Staff**

*Professor Roger Tobin* was awarded the Lillian and Joseph Leibner Award for Distinguished Teaching and Advising, recognizing his success in engaging students.



*Professor Gary Goldstein* (left) was recognized with a Tufts University Distinguished Scholar Award for his influential work on the origins of nuclear spin.

*Professor Ron Thornton*, with two colleagues, received the 2010 American Physical Society award for Excellence in Physics Education, in recognition of twenty-three years of leadership in developing and testing new approaches to teaching physics by engaging students in the observation and analysis of real phenomena.

*Gayle Grant*, administrative assistant, was honored with the University's "Unsung Hero" Distinction Award for consistently and cheerfully going beyond expectations in helping faculty, students and department visitors.

*Denis R. Dupuis*, *Scott J. MacCorkle* and *Laurence P. McMaster*, machine shop staff members, were awarded the "Extra Mile Award" for Tufts employees who have gone that extra mile to provide exceptional customer service.

### **Students**

*Rebecca Batorsky*, GSAS, was awarded the Burlingame Fellowship. From the class of 2010, *Daniel C. Cook* was awarded the Alex Elias Memorial Prize Scholarship; *Robert M. Judith* was awarded the Class of 1947 Victor Prather Prize; *Eric H. Takasugi* was received the Benjamin G. Brown Scholarship; *Matthew H. von Hippel* won the Class of 1898 Prize and *Michael Hancock* received the Amos Emerson Dolbear Scholarship. From the class of 2011 *Lauren A. Wielgus* was awarded the Audrey Butvay Gruss Science Award. The N. Knobbs Knight Prize Scholarship in Physics was awarded to *Ryan Hunter*, 2011, and *Keith Hofmann*, 2010.

The Howard Sample Prize Scholarship in Physics was awarded to: *Cameron Allen*, *David Arbanel*, *Sawyer Bernath*, *Constantin Berzan*, *Nikhil Gopal*, *Yunlin Huang*, *Douglas Kempe*, *Daniel Rizzo*, *Nicholas Stone*, *Carrie Wilson*, *Jennifer Weiskopf*, and *Jordyn Wolfand*.

### **Congratulations!**

The department would like to congratulate the 2010 graduates.

- **Daniel C. Cook**, B.S., Chemical Physics
- **Garth C. Egan**, B.S., Mathematics/Physics
- **Michael E. Hancock**, B.S., Engineering Physics; Advisor: Roger Tobin  
Thesis: *Surface Quality Dependence on Deposition Temperature and Adsorption Properties of Thin Metal Films*

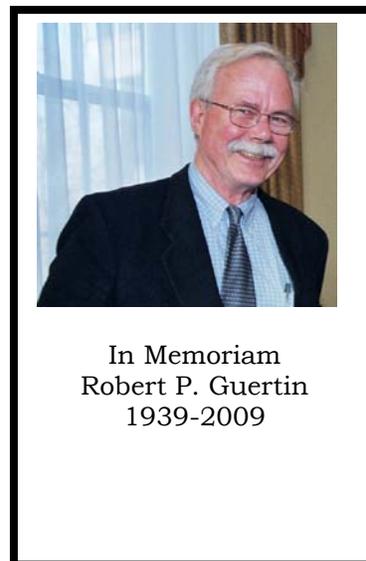
- **Colin M. Harari**, B.S., Astrophysics
- **Keith D. Hofmann**, B.S., Physics/Chemistry
- **Daniel R. Klein**, B.S., Physics
- **Eric H. Takasugi**, B.S., Mathematics/Physics; Advisor: Fiorenzo Omenetto  
Title: *Post-Processing of Optical Fibres through Tapering and Nanostructuring*
- **Erin M. van Erp**, B.S., Physics/Mathematics
- **Matthew H. von Hippel**, B.S., Physics/Philosophy
- **Robert M. Judith**, B.S., Engineering Physics; Advisor: Peggy Cebe  
Thesis: *Crystal Ordering of Isotactic Polypropylene and Carbon Nanotube Composites Under Shear Stress*
- **Konstantinos Metallinos**, M.S., Physics
- **Karla M. Galdamez**, Ph.D., Physics; Advisor: Leon Gunther  
Thesis: *Aspects of Quantization in Quantum Nucleation*
- **Bedriye Seyhan Gunduz**, Ph.D., Physics; Advisor: Peggy Cebe  
Thesis: *Impact of Nanosilicates on Phase Structure and Transitions of Poly (Vinylidene Fluoride)*

I look forward to an equally exciting and productive year in 2010-2011.

Sincerely,

Roger G. Tobin  
Chair

We welcome your news, stories, and ideas for our future newsletters. To contact us or to be added to our mailing list, please email newsletter editor: [Shannon.Landis@Tufts.edu](mailto:Shannon.Landis@Tufts.edu).



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