Miriam Lipschutz-Yevick (SM; PhD ’47, Mathematics) published a book this year, *A Testament for Ariela*, which addresses the younger generation and hopes to inspire them to work for a better world by telling of the experiences of an 88-year old woman MIT graduate.

Roy Weinstein (SB; PhD ’54. Thesis advisor: Martin Deutsch) is an emeritus professor of physics and research professor at the University of Houston. In 1992, due to changes in NSF funding, Roy switched his research focus from elementary particle physics (his first love) to topics in high temperature superconductivity. Interesting discoveries at the University of Houston at that time were the inspiration for this new direction. One week after Roy celebrated his 85th birthday, he received a great birthday present: the receipt of a $3.4 million grant to continue his work in high temperature superconductivity. For further details on Roy’s research program, please visit www.tcsuh.com/.


Aaron Temkin (PhD) Although he finished his graduate studies over 50 years ago, Aaron continues his research in essentially the same field—electron scattering from atomic systems—at NASA’s Goddard Space Flight Center. He retired in 2005, but continues working in an emeritus position. Aaron recently co-authored “Electron scattering from excited states of hydrogen: Implications for the ionization threshold law” (Physical Review A).

Yin Yeh (SB; PhD ’65, Columbia University. Thesis advisor: Perry A. Miles) Upon retirement as professor and chair, Department of Applied Science at the University of California, Davis (UCD), Yin received a Fulbright Senior Scholar Award (2012-2013) to conduct research in Taiwan on the early molecular origins of Alzheimer’s disease. Yin’s colleagues are with the Institute of Electro-Optical Engineering at Chang Gung University (CGU), and the project is funded by the Healthy Aging Research Center of CGU. Additional support for Yin’s work was provided by the 2012-2013 Edward A. Dickson Emeritus Professorship, UCD.

George E. Ioup (SB; PhD ’68 Physics, University of Florida. Thesis advisor: John King) retired early this year after serving on the faculty of the University of New Orleans (UNO) Department of Physics for 43.5 years. He continues to teach, do research, supervise graduate students, and manage grants. George was appointed a UNO University Research Professor in 2003; is a Fellow of the Acoustical Society of America; and remains the director of the UNO Office at Stennis Space Center.

Wallace Manheimer (SB; PhD ’67. Thesis advisors: Uno Ingard, Thomas Dupree) has been very active over the past few years as a proponent of fusion breeding (the use of controlled nuclear fusion for breeding nuclear fuel for existing reactors). A May 2012 letter to the editor of *Physics Today* outlines Wally’s position. For details, see Bit.ly/1aoAITn.

L. David Roper (PhD. Thesis advisor: Bernard T. Feld) spends much of his retirement promoting electric cars and studying minerals depletion. Recently, he converted a 2005 Toyota Prius and a 2006 Toyota Highlander Hybrid to plug-ins (see roperld.com/Science/HiHyPlugin.htm) and drives a 2012 Nissan LEAF electric car. Dave also gives lectures to various groups about electric cars and minerals depletion. He is an emeritus professor of physics at Virginia Polytechnic Institute and State University (Virginia Tech).

Gene D. Sprouse (SB. Thesis advisor: Lee Grodzins) was reappointed to a second five-year term as editor-in-chief of the American Physical Society. Gene never thought he would still be working at this age, but the interaction of the Internet with the distribution of physics results provides a challenging environment. He finds that balancing the need for information to be open with the necessity to pay for the real costs of managing peer review keeps him on his toes and excited about the job.

power. Cynthia’s approach is based on numerical patterns she observed in readily available chemical data, and on a physical model she developed to explain the patterns. The physical model is within the broad domain of quantum chemistry, with a twist of relativity theory added.

Donald Silversmith (SB; PhD ’69, Materials Science & Engineering. Thesis advisors: Jerome Friedman, Benjamin Averbach) started his career on the staff of AT&T Bell Labs, followed by research positions at North American Phillips and MIT Lincoln Laboratory. Don was also a grants officer at the National Science Foundation, the Air Force Office of Scientific Research, and the DoD Defense Threat Reduction Agency. He was at Wayne State University for 15 years, both as an associate dean of engineering and professor of electrical engineering. Don was also an IEEE/AAAS Diplomacy Fellow and a Foster Fellow at the U.S. Department of State in the Bureau of Nonproliferation and the Office of Nuclear Affairs. He retired in February 2012. Don and his wife, documentary filmmaker Karen Cantor, divide their time between homes in Santa Fe, NM, and Alexandria, VA. He’s very much looking forward to his 50th reunion next year, and marching in the 2014 MIT Commencement.

Albert “Avi” Tuchman (PhD. Thesis advisor: Irwin Pless) After nearly 30 years at Textron Defense Systems (Chief Scientist, Sensor Organization), Avi has been (happily) retired since 1993. He and Sylvia, his wife of 55 years, have been enjoying traveling the world to visit their four children (and spouses) and 11 grandchildren. Living in Brookline, MA, Sylvia and Avi are also taking advantage of local theater, museums, and academic environments. Life is good!

Virgil Elings (PhD. Thesis advisor: Louis S. Osborne) reports that a highlight of this past year was riding, via motorcycle, across the U.S. and back with his girlfriend.

Steven Berger (SB; PhD ’73. Thesis advisors: Lee Grodzins, Bernard T. Feld) continues his work on the quintessential elementary particle, the Weyl neutrino, described by a finite dimensional representation of the group of conformal transformations. His analysis poses important questions in a number of fields of mathematical physics, including the theory of partial differential equations and Fourier transform theory. Steve is a full life member of Sigma Xi.

Aviva Brecher (SB; PhD ’72, University of California, San Diego. Thesis advisor: Benjamin Lax) is a principal technical advisor on environment and energy systems at the USDOT Volpe Center in Cambridge, MA. Her research activities focus on sustainable and energy efficient next generation transportation technology options. This past year, she led a study for the DOT/Federal Railroad Administration on strategies and best practices to improve the energy efficiency of passenger and freight rail in the U.S. Aviva also led a study for DOT/NHTSA, analyzing the safety impacts of fuel efficiency technologies and emerging alternative fuels and power-trains on medium and heavy duty vehicles. For the Federal Transit Administration, she completed a report on the status and prospects of lithium ion battery applications to hybrid and electric transit buses, which will also appear as an invited chapter in the 2013 Elsevier Science and Technology Handbook on Applications of Lithium Ion Batteries.

Ray Kronquist (PhD. Thesis advisor: George Bekefi) started teaching an innovative class at Foothill College in Los Altos, CA: Econ 36—Special Projects in Economics. Its aim is to teach students about problems in developing countries while giving them an opportunity to contribute to the solutions of those problems. Ray is also working on a proposal for a graduate program with universities in the U.S. and in developing countries to collaborate on sustainable development projects.

Robert W. Boyd (SB. Thesis advisor: Uno Ingard) After 30 years on the faculty of the University of Rochester, Robert accepted the position of Canada Excellence Research Chair in Quantum Nonlinear Optics at the University of Ottawa. The research program recently established a partnership with the Max Planck Institute for the Science of Light in Erlangen, Germany. Robert had two major research breakthroughs in the past year: his group demonstrated a means to perform the direct measurement of the state vector of a qubit (Nature Photonics, 7, 316-321, 2013); and demonstrated a method to ensure the security of optical surveillance based on a variation of one of the standard procedures of quantum key distribution (Appl. Phys. Lett. 101, 241103, 2012).
Janet Shields (SB; Thesis advisor: James Clough) had two big events this year. The first was receiving a 40-year pin, for years on the job at the Scripps Institution of Oceanography, doing applied research in atmospheric optics. The second was her retirement in May 2013 from her position as principal development engineer and head of the Atmospheric Optics Group at the Marine Physical Lab at Scripps.

Steve Shields (SB; Thesis advisor: James Clough) has been pursuing his love of music by studying how to make recordings of ensembles. He has made several CDs of music groups that he performs with, as well as recording several solo performances. He’s having a lot of fun!

John C. Salerno (SB; PhD Biophysics, University of Pennsylvania; Thesis advisor: Bernard Wuensch) retired in 2006 after 26 years as a professor at RPI, where he was chair of the Biology Department and founder/director of the bioinformatics program. Currently, John holds an endowed chair at Kennesaw State University, Georgia. John’s major “products” include four children, hundreds of publications and students, and several academic programs.

Peter Borden (SB, Physics & Electrical Engineering & Computer Science; Thesis advisor: John King) started a company to develop lighting for people with low vision. Intense light is often the only thing that can recover vision lost to many chronic diseases such as macular degeneration. Perception of light intensity is nonlinear, so effective lighting must be very strong, but most people with these conditions are glare sensitive and cannot tolerate intense light. Peter’s company uses LED sources combined with special optics to produce lighting that is more than five times brighter than normal reading light, but with greatly reduced glare. Independent studies of their products have shown average improvements of two to four blocks on an eye chart, depending on the form of macular degeneration.

Eric Bogatin (SB; Thesis advisor: John King) started a company about 20 years ago teaching short courses in signal integrity to the electronics industry—basically applied Maxwell’s equations, without the equations. The company was acquired by LeCroy Corporation two years ago. Eric recently joined the ranks of the adjunct faculty of the University of Colorado in Boulder and just finished his seventh book, this one to be published by Prentice Hall.

Paul Edelman (SB; Thesis advisor: Steve Chorover) reports that Edelman & Associates, the executive search and technical recruiting firm he founded in 1997, has been busy placing physicists in a variety of interesting quantitative, analytical, and software development roles with software companies, hedge funds, and electronic trading firms. Recent successful candidates include a former MIT physics postdoc, an astrophysicist, and a theoretical physicist.

Jim Pekar (SB; Thesis advisor: William Bertozzi) received the Outstanding Teacher Award from the International Society for Magnetic Resonance in Medicine, in recognition of his lecture on functional connectivity of the human brain at the Society’s annual meeting in Melbourne, Australia. Jim also recently spoke on “Magnetic Resonance Imaging of Functional Networks in the ‘Resting’ Brain” at the Applied Brilliance Conference, Sonoma, CA. In Baltimore, he presented a talk on the same topic at the Kennedy Krieger Institute (his home base), where it was noted that Jim was the first physicist ever hired by that 75-year-old institution. The Kennedy Krieger is affiliated with Johns Hopkins University and dedicated to helping children and adolescents with disorders of the brain.

David Vanderbilt (PhD; Thesis advisor: John Joannopoulos) was elected this year to the National Academy of Sciences. He is the Board of Governors Professor in the Department of Physics and Astronomy at Rutgers.

William Hersman (PhD; Thesis advisor: William Bertozzi) Upon leaving MIT, Bill migrated north to the University of New Hampshire, where he is a professor of physics. He also leads a spinoff company, Xemed, which he founded in 2004 to advance medical applications of hyperpolarized xenon inhalation for pulmonary diagnostic MR imaging. During the past year, Xemed has transitioned its xenon polarizer product from purely research to scaled-up production for clinical trials at several teaching hospitals. Also this past year, Bill initiated a new branch of his academic research: developing a diode pumped alkali vapor laser.

Tanya C. Sienko (SB) earned her J.D. degree from the Chicago-Kent School of Law of the Illinois Institute of Technology.
Sam Hokin (PhD. Thesis advisor: Richard S. Post) is enjoying a return to teaching elementary physics at the University of Wisconsin–Madison, where he was formerly a faculty member. Sam’s big ‘new thing’ this year was doing long-distance computational biology for the Carnegie Institution for Science’s Department of Plant Biology, applying the data analysis techniques he learned as an experimental plasma physicist. Of great help was taking Eric Lander’s online MITx course, 7.00x (highly recommended!). Otherwise, it was a long winter, but Sam now has his BMW motorcycle out and, along with his wife, plans to get a good season of riding in. They average around 7,000 miles per season on the bike, camping or staying in B&Bs. They’re also happy to report that their son Mitchell is finishing his sophomore year in physics and math at the UW-Madison.

Lerothodi L. Leeuw (SB. Thesis advisor: Ron Remillard) has joined the University of South Africa as professor in the College of Graduate Studies.

Nelson Christensen (PhD. Thesis advisor: Rainer Weiss) is a professor of physics at Carleton College, Northfield, MN, but blissfully spent the 2012-2013 academic year on sabbatical at Laboratoire de l’Accélérateur Linéaire, Orsay, France, researching gravitational wave detection for LIGO and Virgo.

Matt McCluskey (SB. Thesis advisor: Jonathan Wurtele) was appointed Chair of the Department of Physics and Astronomy, Washington State University. On the research side, Matt filed a provisional patent for a new kind of confocal microscope.

John Ellithorpe (PhD. Thesis advisor: Jacqueline Hewitt) is co-founder and Chief Technology Officer of an enterprise software company called Model N, founded in December 1999. This past spring 2013, Model N went public on the NYSE with the trading symbol MODN.

Deborah Becker Haarsma (PhD. Thesis advisor: Bernard Burke) enjoyed 14 years as a professor of physics and astronomy (including four years as department chair) at Calvin College in Grand Rapids, MI, doing research in extragalactic astronomy. Along the way, she did a fair amount of writing and speaking to evangelical Christian audiences, showing that Christian beliefs do not require the rejection of modern science. In 2011, she co-authored with her husband Loren Haarsma, Origins: Christian Perspectives on Creation, Evolution, and Intelligent Design. Deborah is now working full-time as the President of BioLogos (biologos.org), a non-profit organization promoting the harmony of Biblical faith and evolutionary science.

Troy D. Hammond (PhD. Thesis advisor: David Pritchard) In 2012, Troy completed the sale of BlueStar Energy, where he was President of Energy Services, and returned full-time to academia as the president of North Central College, Naperville, IL. North Central is a comprehensive liberal arts college affiliated with the United Methodist Church, with about 3,000 students. Together with his wife Sharlene and children Adonay (16), Dillon (14), Karina (13), and Gabrielle (11), he now lives on the Naperville campus.

Eric Ford (SB. Thesis advisor: Frederic Rasio) is moving his research group from the University of Florida to the Pennsylvania State University as part of the Penn State Institute for CyberScience cluster hire initiative. As of Fall 2013, Eric will be a professor in the Department of Astronomy & Astrophysics, and the deputy director of the Center for Exoplanets and Habitable Worlds. He will also be joining the Penn State Astrobiology Research Center and Center for Astrostatistics. For the past few years, Eric’s research has focused on analyzing and interpreting data from NASA’s Kepler mission as it seeks to determine the abundance of Earth-size planets.

Patrick Wojdowski (PhD. Thesis advisor: George Clark) is happy to announce that he married Brigid McDonough in July 2011, and their son Owen was born on September 15th, 2012.

Dan Dwyer (SB. Thesis advisor: Krishna Rajagopal) has spent the past five years developing his ‘mad scientist credentials’ by building a massive technical contraption in an underground tunnel at one of the largest nuclear power plants in China. The effort paid off this past year with a clear measurement of neutrino disappearance, which was named one of the top ten breakthroughs of 2012 by Science. Dan was responsible for organizing the commissioning of the particle detectors, then for coordinating the data analysis for this large international project (The Daya Bay Reactor Neutrino Experiment; 200+ scientists). Dan’s wife, Jackie Wong (SB ’02), is looking forward to seeing him again.
Noah Bray-Ali (SB. Thesis advisors: Xiao-Gang Wen, Uwe-Jens Weise) This past summer, Noah completed his National Research Council Postdoctoral Fellowship at the Joint Quantum Institute, a collaboration between the National Institute of Standards and Technology and the University of Maryland. In 2008, he co-discovered the universal entanglement spectrum of topological insulators and superconductors while supported by the National Science Foundation at the University of Southern California. For the past five years, Noah has worked on semiconductor hetero-structures, transition metal oxides, and ultra-cold atoms.

Aaron Santos (SB; PhD ’07, Boston University) started a tenure track position in physics at Simpson College in Indianola, IA, this fall. His second book, Ballparking: Practical math for Impractical Sport Questions, came out in 2012.

Nataliya Yufa (SB. Thesis advisor: Krishna Rajagopal) recently returned to Cambridge, MA, after 12 years away. During that time, she was busy earning a doctorate in physics at the University of Chicago; working as a postdoc at the Cavendish Laboratory, University of Cambridge, UK; and wrapping up with a year in Houston, TX. Currently working as a researcher at a math education non-profit, Nataliya enjoys organizing enrichment activities in math and science for K-12 students, and is looking for partners in starting a new math circle in the area. Please contact nat222@alum.mit.edu if interested.

Nathan Collins (SM. Thesis advisor: Scott Hughes) After a few years of academia and non-profits, Nathan’s embarking on a career as a science writer, focusing on physics and neuroscience.

Alex Wissner-Gross (SB, Physics/Electrical Engineering/Mathematics; PhD ’07, Harvard University. Thesis advisor: Bolek Wyslouch) was elected to the Young Engineers Organization and appointed an “Expert In Residence” at the Harvard Innovation Lab. He also published a remarkably simple new physical theory of intelligent behavior in Physical Review Letters, which was widely featured in the press. More information is available at alexwg.org.

Edward Boyce (PhD. Thesis advisor: Jacqueline Hewitt) married Yun Zhang in August 2012 and Edward and his lovely wife are enjoying the start of their married life in Sydney, Australia. Yun has a doctorate in human computer interaction, which probably helps her to tolerate her husband’s nerdy personality.

Jason Pelc (SB. Thesis advisor: Nergis Mavalvala) earned his doctorate in applied physics at Stanford University in September 2012, working on optical frequency conversion of single photons with Martin Fejer. He is now researching nanophotonics and nonlinear optics as a postdoc in the Large-Scale Integrated Photonics group at HP Labs in Palo Alto, CA.

Nicole Ackerman (SB. Thesis advisor: Peter Fisher) completed her doctorate in physics at Stanford University, and is currently an assistant professor of physics at Agnes Scott College, in Decatur, GA.

Arthur J. Franke (SB. Thesis advisor: Gunther Roland) In December 2012 Arthur earned a PhD in physics from Columbia University for his work on experimental neutrino physics. Shortly thereafter, he began a job in the private sector as a data analysis consultant.

Keisuke Goda (PhD. Thesis advisor: Nergis Mavalvala) is currently a professor of physical chemistry at the University of Tokyo and an associate adjunct professor of electrical engineering at the University of California, Los Angeles. In 2013, he won the Konica Minolta Imaging Science Award.

Alexandra (Sasha) Rahlin (SB. Thesis advisor: Max Tegmark) is in the final year of her PhD in physics at Princeton University, for which she was recently awarded the inaugural Joseph Taylor Graduate Student Fellowship. Sasha’s thesis experiment is a balloon-born polarimeter called SPIDER, designed to study the degree-scale polarization of the cosmic microwave background. The experiment is launching from McMurdo Station, Antarctica, in December 2013, with the goal of providing stringent constraints on the various theories governing cosmology in the very early Universe.

Forrest Funnell (SB) returned to Boston this fall to begin the MBA program at Harvard Business School. He spent the last two years in New York City working in private equity investing. Forrest is looking forward to catching up with MIT colleagues and attending a few MIT physics colloquia.