



Alumni Newsletter • Spring 2017



POLYMER SCIENCE AND ENGINEERING

Polymer Research:
*Celebrating 50 years of... uncovering principles,
breaking boundaries, transforming technologies.*

Dear **PSE** Alumni and Friends of
the Department,



I am delighted to be addressing you as the new Head of the Polymer Science and Engineering Department. I want to thank the immediate past Head David Hoagland for his six years of dedicated service and countless efforts to strengthen PSE.

We are in year 51 of the ever-evolving history of PSE at UMass. The numerous events held in celebration of PSE50 were a spectacular success. Many thanks must be given to Greg Grason and the wonderful PSE staff members who planned, coordinated logistics, and brought to fruition the on- and off-campus events. The real success of PSE, however, is due to you - our alumni. You all helped to write the history of our department; you added your own chapter during and after your time in Amherst. I also want to thank all of you who have contributed financially to the PSE50 fund raising campaign. These contributions support the continued success of current as well as future generations of PSE students. My hope is that those of you who have made contributions will consider sustaining annual donations; for those of you who have not yet given, please note that any donation regardless of size is used to directly support the education of first-year graduate students.

As we embark on the next half century of PSE, I eagerly anticipate the addition of junior faculty members in experimental polymer physics and polymer engineering. These young investigators with fresh exciting research visions, aided by recent substantial infrastructure and research equipment additions in the Conte Building and on campus, will propel new research concepts and ensure that PSE remains at the leading edge of polymer research. The newly created Robert K. Barrett Chair in Polymer Science and Engineering will allow us to bring to campus a senior investigator who will strengthen existing efforts in the Department and on campus but allow us to embark on bold new initiatives.

Please continue to stay engaged with your classmates, fellow alums and the Department. The connections you made while in Amherst and afterwards have built a world-wide network that has made, and continues to make, a global impact on our discipline. I am excited to begin the next half century in the history of our Department. Please visit the Department web site to stay informed of latest news; come visit us in Amherst when you have the chance.

- E. Bryan Coughlin

2016 Fellowship Awardees



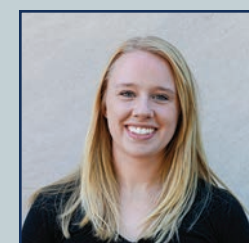
Joshua Enokida
Lenz Scholarship Fund
BS: Materials Science
Virginia Polytechnic Institute &
State University



Megan Matta
Kleiner Family Fellowship
BS: Chemistry
University of Minnesota, Twin Cities



David Limberg
PSE50 Alumni Fellowship
BS: Materials Science
University of Illinois, Urbana Champaign



Elizabeth Stubbs
Professor Richard J. Farris Scholarship
BS: Materials Science
University of Wisconsin-Eau Claire



Xiaoshuang (June) Wei
PSE50 Alumni Fellowship
BS: Polymer Materials
Zhejiang University



Huyen Vu
Ananda and Ajanta Chatterjee Fellowship
BS: Chemical Engineering
Worcester Polytechnic Institute

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Dr. Ananda Chatterjee*

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2015 -2016 Graduates

PSE Newsletter Team:

**Greg Grason (editor),
Jessica Skrocki (PSE Media Coord.)
Katya Missry (design & layout)**

Special thanks to

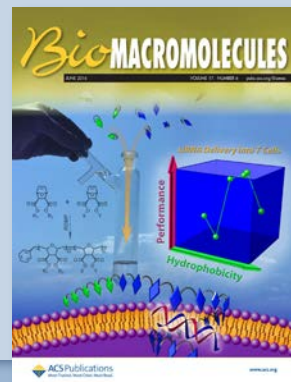
**E. Bryan Coughlin,
David Hoagland,
Jennifer Cooper,
Matthew & David Tirrell,
Charlie Dickinson & Lothar Kleiner.**

Please send comments and suggestions to
jskrocki@polysci.umass.edu.

Synthetic Polymers Sneak into Cells

Recent work by Tew group members Brittany deRonde and Nick Posey exploited ring-opening metathesis polymerization (ROMP) for design and study of protein mimics. Utilizing ROMP allows for optimization of protein-mimicking hydrophobicity for delivery of a biologically relevant cargo, siRNA, into often inaccessible human T cells.

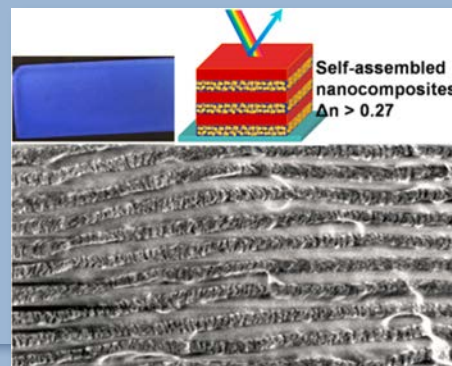
citation: B. deRonde et al. *Biomacromolecules* 17, 1969 (2016),
doi: 10.1021/acs.biomac.6b00138



Bouncing Light from Brush Block-Copolymer Composites

Watkins group members Dong-Po Song, Cheng Li, and Wenhao Li demonstrated facile block-copolymer-based photonic nanocomposites with large contrasts in refractive index ($n > 0.27$). Metal oxide nanocrystals were selectively incorporated within brush-block copolymer domains under high loading concentrations without aggregation while maintaining well-ordered domains with refractive indices tunable from 1.45 to over 1.70.

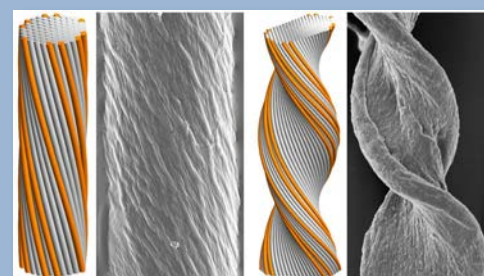
citation: D.-P. Song et al. *ACS Nano* 10, 1216 (2016),
doi: 10.1021/acsnano.5b06525



Twisted Tangles Get into Shape

A broad range of self-assembling materials form twisted bundles and fibers. Grason group members Douglas Hall and Isaac Bruss developed a new theory that predicting how packing constraints in self-twisting assemblies determine the size and shape of bundles. Their predictions shed light on morphology selection in amyloid fiber-forming protein mixtures.

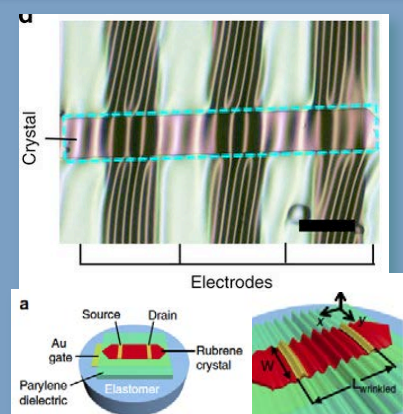
citation: D. M. Hall et al. *Nature Materials* 15, 727 (2016),
doi: 10.1038/nmat4598



Better Single-Crystal Electronics through Wrinkling

Marcos A. Reyes-Martinez, from the Briseno and Crosby groups, applied local strains along the conducting channel in “wrinkled transistors” to discover that the net strain at the dielectric/semiconductor interface dictates the conductivity of the device.

citation: M. A. Reyes-Martinez et al. *Nature Communications* 6, 6948 (2016),
doi: 10.1038/ncomms7948



Gift to Establish the Robert K. Barrett Chair in Polymer Science and Engineering

Family's Philanthropy Expands with a Second Faculty Chair in Polymer Science

As the department celebrated its 50th year, it had the great privilege of accepting a transformative gift from alumnus Robert Barrett to create the Robert K. Barrett Chair in Polymer Science and Engineering. This is the second endowed faculty position in the department funded by the Barrett family, both of which serve to recruit and retain distinguished faculty.

Robert Barrett, who graduated in 1964 with an Economics degree at UMass Amherst, is the owner of Toronto-based company Polytainers Inc., a leading producer of specialty containers for food and dairy products. Together with his father, Wilmer Barrett '34, Robert helped to found Polytainers, Inc. in 1968. As the company grew, Wilmer Barrett began supporting his alma mater and its innovative new department that aligned with the work of his company. In 1992 he proudly established the Wilmer D. Barrett Chair in Polymer Science and Engineering, taking a philanthropic step that his son would someday emulate. Today, distinguished Professor Murugappan Muthukumar is the current holder of this endowed position.



Vice Chancellor Michael A. Leto, Provost Katherine S. Newman, Francine & Robert Barrett, Paul & Gail McDonald, Dean Steve Goodwin and David Hoagland at the formal gift acknowledgment during the PSE50 Reunion symposium.

“The philanthropic legacy of the Barrett family at PSE is truly remarkable,” said Professor E. Bryan Coughlin, head of PSE. “We deeply appreciate Mr. Barrett’s and his father’s commitment to fostering innovation in higher education, and for helping us to build and maintain one of the world’s leading environments for polymer science and engineering.”

Robert and Francine Barrett had the opportunity to return to campus last spring as UMass formally acknowledged this gift. “I am deeply inspired by my father’s life-long teaching of ingenuity, entrepreneurship, and giving back,” said Robert Barrett. “After several decades of supporting the Wilmer D. Barrett Chair in memory of my father, I am proud to know that I too can help to create a lasting impact at our shared alma mater. I am deeply excited by the work of the Polymer Science and Engineering Department and I look forward to seeing the many ways that this new position will impact this community of great minds.”

Packed lecture hall for the Spring 2016 PSE50 talk by alumnus and NASA astronaut Dr. Cady Coleman '83.



PSE50 Alumni Reunion UMass Amherst

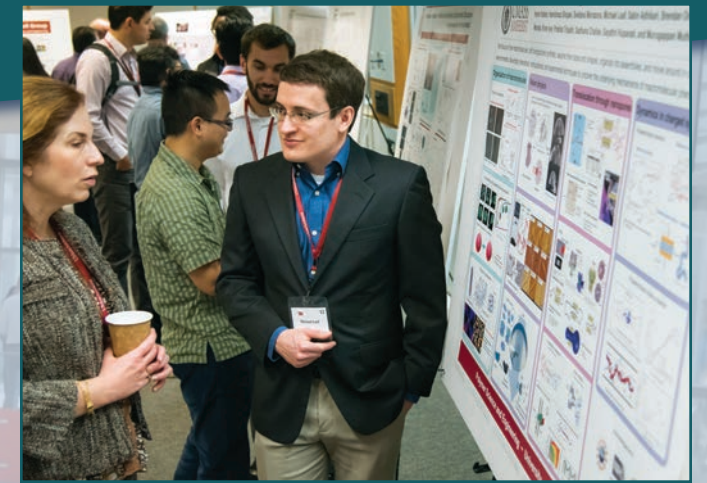
May 12-13, 2016



Jan Stouffer '82, Mark Loch, Art Tipton '83



Cady Coleman '83, Richard Gooding '78, Christine Costello '82 and Penelope Ashby Patton '81



Michael Leaf '12 presenting at the Friday poster session



(Back Row) Wade Adams '78, David Martin '85, Steven Hudson '85, (Middle Row) Robert Briber '79, Ed Sherman '77, Jean Brady '82, Barbara Wood '80, (Front Row) John Reffner '85, Ned Thomas, Dale Handlin '78



(Back Row) Bret Vanzo '80, Vivek Soni '80, John Reynolds '80 (Front Row) Ametta Soni '80, Barbara Wood '80, Debra Simoff '79



Bob Weiss '72 presenting Bill MacKnight with a photo book at his 80th Birthday Dinner



Jim Tkacik '70, Bob Weiss, Cindy Weiss, Maripaz Shaw, Montgomery Shaw, Peter Lillya, Maija Lillya



Bill MacKnight on violin with the Jade Quartet ensemble for his 80th Birthday Concert at the Fine Arts Center, UMass



(Back Row) Dayong Chen '08, Yujie Liu '09 (Front Row) Maria Chiappelli '09, Brittany deRonde '10, Jinbye Bae '09, Polina Ware '09



President of the Fukuoka Women's University of Japan - Tisato Kajiyama '66 speaks during the first day of the PSE 50 Alumni Reunion.

Celebrations concluded with the PSE50 Japan Reunion held on December 12th, 2016 in Kitakyushu Japan. The reunion was organized by Kazuo Sakurai. Tisato Kajiyama was honorary chair.



(Back Row) Shota Fujii, Kazuo Sakurai, Harry Bermudez, David Hoagland, Greg Grason, E. Bryan Coughlin, Thomas McCarthy, M. Muthukumar (Front Row) Mitsuhiro Fukuda, Hiroaki Namba, Tisato Kajiyama, Akihiro Izuka, Mitsuhiro Shibayama, Ken Kojio

THE HISTORY (continued)



In past newsletter installments, Bill MacKnight recounted important developments in PSE history up to the 1996 dedication of the Silvio O. Conte building. This third (and last installment) covers PSE's more recent history, from roughly 1996 through 2016, the year of PSE50.

PSE consolidation in Conte created immediate, positive changes in all aspects of PSE research and education. Beyond gathering activities in one location, Conte facilitated new instrument placements and offered enough elbowroom for laboratory researchers to avoid overlapping work areas. Designed with key inputs from faculty members, particularly Tom McCarthy, the new, high quality lab space was more than sufficient for the envisaged expansion of PSE from 13-14 to 18-20 research groups. At the outset, Conte activities were restricted to polymer research and informally overseen by just PSE. Despite attempts by others on campus to gain a Conte footprint, these restrictions have remained intact since.

Now, with space to house expensive multi-user instruments available, central instrument facilities overseen by dedicated staff members quickly grew in number. While Charlie Dickinson had already supervised the NMR facility, within a few years PSE had created comparable facilities for electron microscopy, mass spectrometry, x-ray scattering and diffraction, molecular weight characterization, optical microscopy, and other methods. Facilities oversight was by PSE with financial help from MRSEC; instrument use was typically about half by PSE insiders and half by outsiders. Tom Russell, recently hired, was a major driver of facilities centralization, and after a time, PSE facilities became crucial to broader campus research, leading to a current campus-wide facilities consolidation.

About the time Conte opened, Klaus Schmidt-Rohr was hired, strengthening polymer physics and the burgeoning application of solid-state NMR to polymers. Soon afterward, in reverse, Dave Tirrell moved to Caltech and Bruce Novak moved to North Carolina State. Reacting to the moves, to compensate for the lost synthesis and biopolymer expertise, PSE hired assistant professors Jacques Penelle and Helmut Strey, and then

slightly later, Bryan Coughlin was added to grow polymer synthesis efforts even further.

The prominent placement of PSE in the National Research Council among graduate education programs in 1995 signaled the rise of PSE in the academic polymer world. At nearly the same time, U.S. News and World Report placed PSE first among all "polymer chemistry" graduate programs. The next NRC rankings, conducted in 2010, placed PSE at an equally high position. In 1998, MacKnight was elected to the National Academy of Engineering, trailing the election of Karasz and Stein to the body in 1991; Russell gained election in 2008. In a competition with financial implications, the 1998 Department of Education's Graduate Assistance in Areas of National Need (GAANN) proposal review, PSE's proposal placed first from among all submitted, thereby garnering the largest fellowship allotment. PSE subsequently received further GAANN grants, helping to maintain PSE's traditional policy of offering all of its first-year graduate students stipend support absent teaching or research responsibilities. This support, allowing for a flexible year of focused polymer study, remains a "core" PSE value, although the funds to support this practice have changed over the years. Up to 1995, this support was provided in large part by industrial fellowships, but in the present day, first-year support derives substantially from federal-funded traineeships like the GAANN and alumni-supported fellowships.

*Photos above:
Former U.S. Sen. Edward Kennedy and former Gov. Mitt Romney speak at a Boston State House news conference announcing \$16 million in NSF funding to establish the Center for Hierarchical Manufacturing (CHM) at UMass.*

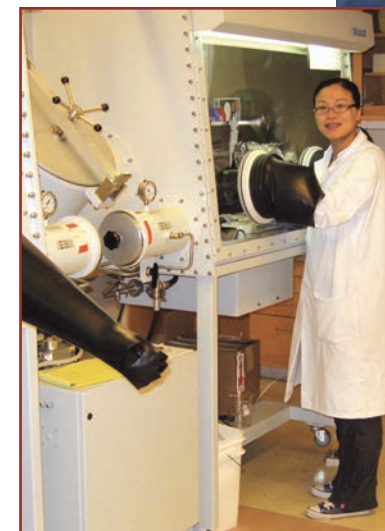
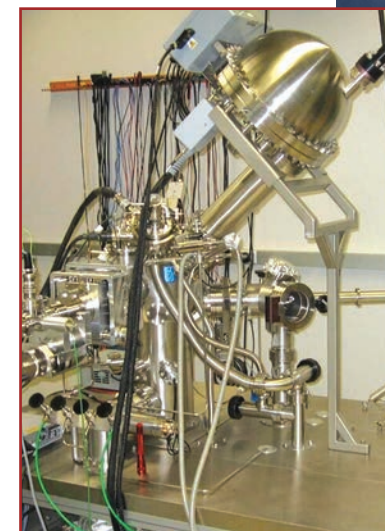
Over 1995-98, another important task was accomplished, the revitalization of CUMIRP, which had seen a drastic drop in funding and membership starting in about 1990. With inputs from others, MacKnight and Kantor proposed a new CUMIRP model structured around research clusters, which would combine funds from multiple companies with efforts of multiple UMass faculty members, enabling significant technological problems to be addressed and cluster companies to influence cluster problem areas. In 1993, Brad Moynahan was hired as a new CUMIRP director, and 3 years later, with the model mostly established, Jim Capistran replaced Moynahan, driving CUMIRP membership to its current level of roughly 40 companies.

The period from 1993-2000 saw the retirement of many of PSE founders, including Chien, Farris, Karasz, Lenz, MacKnight, and Porter. The faculty size of 13-14 in 2000 was therefore not much different than in 1990 (or even earlier), and so, rapid faculty hiring continued into the early 2000s. Greg Tew, Todd Emrick, and Maria Santore joined in 2001, Al Crosby came in 2002, Ken Carter arrived in 2004, Jim Watkins moved to PSE in 2005, Ryan Hayward and Harry Bermudez started in 2006, and Greg Grason rounded out the hiring surge in 2007. The next, and most recent, PSE hire was in 2009, when Alejandro Briseño arrived. Since then, the PSE faculty number has remained at 18. These hires spanned a broad range of polymer subdisciplines, complementing hires from the early PSE days. Nevertheless, an inspection of projects and papers for the period shows a shift toward "applications-oriented" as opposed to "fundamentals-oriented" research, perhaps reflecting the maturation of the polymer field. Another trend, and one that continues, saw many project and papers focused on topics outside the traditional polymer mainstream, with directions instead toward nanoparticles, molecular imprinting, nanofabrication, and the like, topics often referenced under the term "soft matter". The quality of the young PSE hires was outstanding, as evidenced by Early Career awards made to every eligible individual (8 in total). In this period, PSE Heads were Farris (1995-2000), McCarthy (2000-03), Hsu (2004-10), and Hoagland (2010-16); Coughlin (2016-) has just started.

From PSE's beginnings, MRSEC has remained a firm partner, acting informally as PSE's primary agency for collaborative academic research and attracting both campus and external academics for multidisciplinary attacks on fundamental polymer problems. Serving as MRSEC Directors over 1995-2016 were Tirrell (1988-97), Russell (1997-2009), and Emrick (2009-16). After 2005, two similar federal centers were funded at levels exceeding that of the MRSEC, the Center for Hierarchical Manufacturing (NSF, 2006-16), managed by Jim Watkins and focused on nanofabrication, and the Polymer-Based Materials for Harvesting Solar Energy Frontier Research Center (DOE, 2009-15), managed by Tom Russell and focused on organic photovoltaics. Initiated with "sunset" clauses, both centers have recently ended their activities. With center grants attracting an increasing fraction of federal research dollars, multi-investigator centers have become the linchpin of any successful physical sciences or engineering department, and PSE has competed well for them.

Through all of this change, the PSE student experience remained much the same as in earlier eras, with emphasis on coursework, then cumulative exams, and finally thesis work (the time-to-degree has grown slightly to about 5 years). Perhaps most significant was a change to the cumulative exam rules in 2015. The old 5-out-of-10 (or 4 in-a-row) passing requirement was switched to a 3-out-of-6 exams passing requirement, reflecting a difficulty in supporting students not fully involved in a funded research project, a need to keep the time-to-degree at about 5 years, and an increased recognition that the previous scheme stressed students for an unduly long period. This rule change notwithstanding, other PSE student traditions move forward, nearly as originally envisaged and experienced. The 51st entering graduate class took its first cumulative exam on Saturday, February 11th at 9 AM, and they shortly will take their second exam. Wish them luck...

*Photos above:
(top) EFRC Photovoltaic Facility lab equipment.
(bottom) Dian Chen '06 working on equipment in the Energy Frontier Research Center (EFRC) Photovoltaic Facility lab.*



The Tirrell Brothers Join Together to Establish Endowment for PSE



Tirrell brothers David '74 and Matthew '73

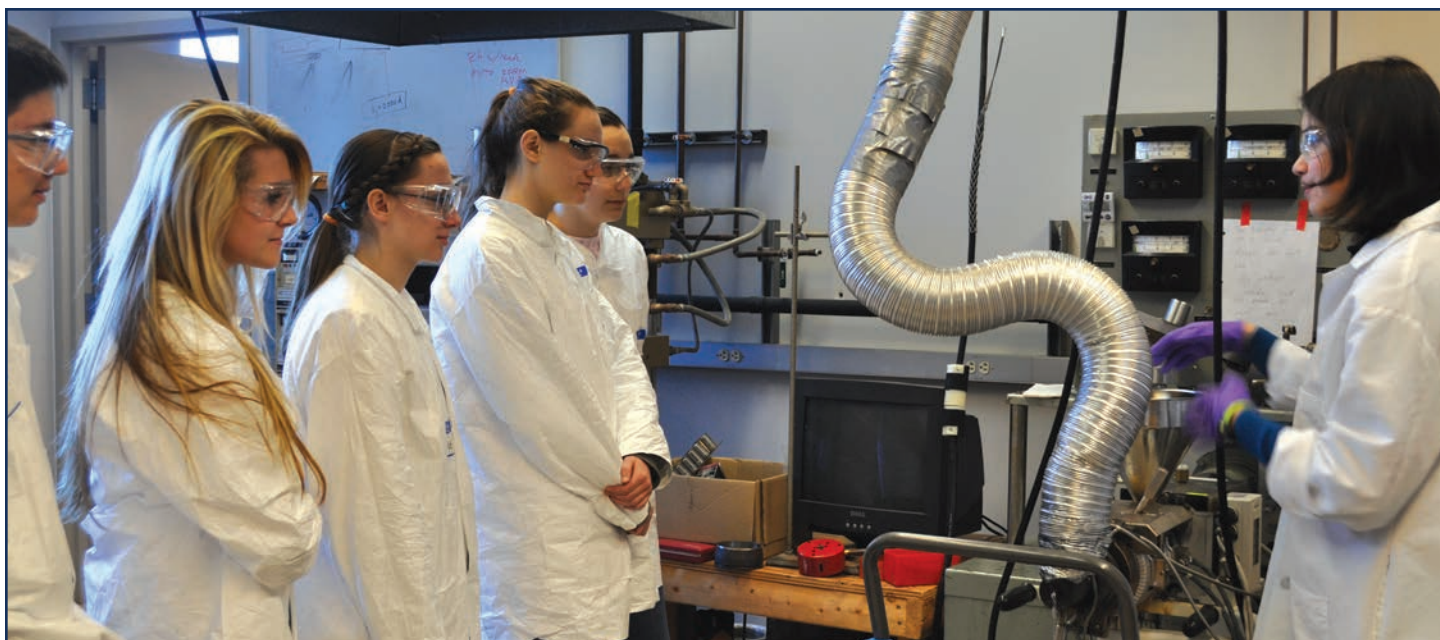
As the Dean and Founding Pritzker Director of the Institute for Molecular Engineering at the University of Chicago, Dr. Matthew Tirrell understands the importance and impact of philanthropy. The stunning state of the art, 265,000 square foot Eckhardt Center that is home to his department was made possible through the donations of many University of Chicago alumni and friends. Their collective generosity has significantly expanded what his team will accomplish.

Matt's brother, Dr. David Tirrell, also understands the power of philanthropy. Dave is the Ross McCollum-William H. Corcoran Professor and former Chair of the Division of Chemistry and Chemical Engineering at the California Institute of Technology. On a recent tour of the

campus, he pointed to many examples of its transformation, including the new Warren and Katharine Schlinger Laboratory for Chemistry and Chemical Engineering, and remarked, "Support from alumni families like the Schlingers is essential to what we do at Caltech."

It was philanthropy's profound effect on the departments where they work that led the Tirrell brothers, and their wives Pamela and Jane, to establish an endowment for PSE at UMass. Matt said of his decision to help PSE, "It is harder for public universities to raise money because many assume the state contributes a great deal when that is no longer true."

Seeing their many fellow alumni and colleagues gathered for the PSE50 events convinced the Tirrell brothers that the PSE department could be supported at a higher level by its alumni and friends. "People think if they can't give a million, why give anything. But we have to start somewhere. We hope that by doing what we can, others will come forward in any way they can. Together we can accomplish a lot."



Local high school students try out chemistry, physics and engineering in a five-week experimental lab program held at the Polymer Research Center as part of A Student-led Program In Research and Education, or ASPIRE.

In Memoriam



Professor James ("Jimmy") W. Chien, former PSE faculty member and advisor to many PSE graduates over the years, died on November 19, 2016. He was 87.

After leaving Hercules Co., Jimmy spent a sabbatical at Stanford University working on structures of biological molecules and multiple frequency spectroscopy techniques, and in 1969 he came to UMass Amherst as a Professor of Chemistry. The PSE program was just beginning, and Jimmy quickly became a part of the "core" polymer efforts by joining the Polymer Research Institute. He gradually built up a large group working on problems such as catalysts for polymerization, metalloenzyme

structures and properties and structure of conducting polymers. His work was supported by the National Institutes of Health, the National Science Foundation, and many grants from industry. After making important contributions to PSE for years, Jimmy officially joined the PSE faculty in 1989. Jimmy led interactions with a number of industrial partners even before CUMIRP, and also brought in significant funding for fellowships, etc. One of his most important contributions was organizing (along with Vogl and Lenz) the IUPAC meeting held in Amherst in 1982. This meeting gathered prominent members of the polymer community from around the world and really put PSE on the "map". During his time at UMass he was consultant to a number of major chemical companies. He published over 200 papers in peer-reviewed journals and was the author of two books – Polyacetylene and Coordination Polymerization: A Memorial to Karl Ziegler. Many of his students and postdoctoral fellows became faculty members in major universities or now work in the chemical/polymer industry. He retired from UMass in 1993.

Dr. Ananda Chatterjee, PSE alumnus, dear friend and colleague to many in the polymer community, passed away on April 5, 2016. Ananda was 69.

Born in Agra and raised in Kolkata, Ananda completed a significant portion of his education in India before immigrating to Canada to attend the University of Waterloo in Ontario, receiving his MS in ChemE. Ananda joined the 1970 PSE entering class and arranged to pursue his Ph.D. under the direction of Roger Porter. He graduated in 1974 with a dissertation on Heterogeneous Nucleation in the Crystallization of High Polymers from the Melt. Ananda spent the majority of his career at Shell Oil Company as R&D Team Leader and Research Engineer. He later worked for Union Carbide, Dow Chemical, Kaneka Texas and Ingenia Polymers (as Technical Manager) before he founded Chatterjee Consulting, LLC to provide technological and consulting services to the polymer and chemical industries. He held thirty US patents in polymer technologies and received several polymer industry awards including Fellow of the Society of Plastics Engineers (2008). Ananda served for several years as Associate Editor of the Journal of Plastic Film & Sheeting (JPFS). An active member of his local Houston community, Ananda kept strong connections to PSE throughout his career, from his publication of a special JPFS issue in honor of Dick Stein's 90th birthday to his championship of efforts to celebrate the 50th anniversary of PSE. Ananda felt it was important to help the next generation of PSE students share opportunities he had. He and his wife, Ajanta, chose to establish a fellowship for Polymer Science and Engineering, awarding the first Ananda and Ajanta Chatterjee Fellow in Fall 2016.





Brian Cromer, Anesia Auguste, Wenxu Zhang, Anand Arvind Rahalkar, Yu Cheng Chen, Ning Ouyang, Nicholas Colella, Angela Cugini, Brittany deRonde, Hsin-Wei Wang, Jimmy Lawrence

Kyle Bryson (R. Hayward; T. Russell) Controlling the Assembly of Nanoparticles in Polymer Blends	<i>December 2, 2015</i>
Anand Arvind Rahalkar (M. Muthukumar) Diffusion of Polymers in Polyelectrolyte Gels	<i>December 3, 2015</i>
Nicholas Colella (A. Briseno; J. Watkins) Model Systems for Characterizing the Intrinsic Properties of Polymer Semiconductors: Oligomers and Single Crystals	<i>December 10, 2015</i>
Tao Feng (D. Hoagland; T. Russell) Nanomaterials at Liquid/Liquid Interfaces: Assembly and Rheology	<i>January 28, 2016</i>
Anesia Auguste (R. Hayward) Post-wrinkling Behaviors in Layered Elastic Polymers	<i>March 7, 2016</i>
Yinyong Li (K. Carter) Fabrication of Ultrafine Structures and Functional Surfaces over Large Areas	<i>March 18, 2016</i>
Wenxu Zhang (E.B. Coughlin) Synthesis and Characterization of Polymeric Anion Exchange Membranes	<i>March 22, 2016</i>

Brian Cromer (A. Lesser; E.B. Coughlin) Engineering Advanced Morphologies for Structurally Reinforced Polyolefins	<i>March 24, 2016</i>
Rachel Letteri (T. Emrick; R. Hayward) Functional Hydrophilic Polymers for Solution Assembly and Non-viral Gene Therapy	<i>April 11, 2016</i>
Mengmeng Cui (T. Russell) Nanoscience at Interfaces and Surfaces: From Jamming to Electrode Texturing	<i>April 11, 2016</i>
Harsh Katkar (M. Muthukumar) Kinetics and Dynamics of Electrophoretic Translocation of Polyelectrolytes through Nanopores	<i>May 16, 2016</i>
Patrick Homyak (E.B. Coughlin) Fluorinated Conjugated Polymers for Organic Photovoltaics: Synthesis by Direct Arylation and Structure-property Relationships	<i>May 5, 2016</i>
Chia-Chih (George) Chang (T. Emrick) New Synthetic Platforms for Functional Polymer Zwitterions and Degradable Materials	<i>June 15, 2016</i>
S. Piri Ertem (E.B. Coughlin) Polymer and Small Molecule Designs for Anion Conducting Membranes: Connected Ion-channel Morphologies and Highly Alkaline Stable Ammonium Cations	<i>July 21, 2016</i>
Paul Young Kim (D. Hoagland; T. Russell) Particles Confined By Fluid Interfaces: Imaging Particle Motion, Interface Deformation and Capillary Forces	<i>August 25, 2016</i>
G. Connor Evans (A. Lesser) Engineering Polymers through Impact Modification and Superheated Liquid Processing	<i>August 29, 2016</i>
Michael Imburgia (A. Crosby) Deformation and Adhesion of Soft Composite Systems for Bio-inspired Adhesives and Wrinkled Surface Fabrication	<i>September 19, 2016</i>
Joel Sarapas (G. Tew) Thiol-ene Chemistry as an Enabler of New Polymer Structures and Architectures	<i>October 21, 2016</i>
Gajin Jeong (T. Russell) Reducing the Size Scale of Block Copolymer Microdomains and Morphology Study of Brush Block Copolymers Containing Homopolymers	<i>November 28, 2016</i>
Zhiwei Sun (T. Russell) The Self-assembly of Lamellae-forming Block Copolymer for High Resolution Nanolithography	<i>November 29, 2016</i>
Svetlana Morozova (M. Muthukumar) Vitreous Gel Physics	<i>December 19, 2016</i>

Alumni Honors

Professor Alyssa Panitch '97 PhD - 2015 Fellow of The National Academy of Inventors
Charles Sherwood '77 PhD - 2015 UMass Distinctive Achievement Award
Emmett Crawford '99 PhD - ACS Heroes of Chemistry Award
Emily Pentzer '10 Postdoc - National Science Foundation Career Award
Amy Heintz '03 PhD - Battelle Inventor of the Year Award

Faculty Honors

Alejandro Briseno - 2017 ACS Arthur C. Cope Early Career Scholar Award
Kenneth Carter - 2016 ACS POLY Fellow
Todd Emrick - 2016 ACS POLY Fellow; 2016 Outstanding Research Award (CNS College)
John Klier - 2016 PSE Adjunct Faculty
Thomas McCarthy - 2016 UMass Distinguished Professor
Murugappan Muthukumar - 2017 ACS Award in Polymer Chemistry
Thomas Russell - 2016 ACS Award in Applied Polymer Science;
Thomson Reuters - "World's Leading Scientific Minds" List

Student Honors

Molly Shave - 2015 (CBI) Chemistry-Biology Interface Program Traineeship Award
Qi Lu - 2015 Santos Go Award, PSE
Mike Imburgia - 2016 Peebles Student Award (Adhesion Society Meeting)
Carolyn Zhao - 2016 National Defense Science and Engineering
Graduate (NDSEG) Fellowship
Joshua Enokida - 2016 National Defense Science and Engineering
Graduate (NDSEG) Fellowship; Lenz Scholarship Fund
Sarah Ward - 2016-17 NSF GRFP Graduate Research Fellowship Program;
2016 Santos Go Award, PSE
Allen Chang - 2015-18 NSF GRFP Graduate Research Fellowship Program
Brian Montz - 2016 PSE Fellow
Subrajeet Deshmukh - 2015 Arkema Fellowship
Alexa Kuenstler - 2016 Arkema Fellowship
Hyunki Kim - 2015 Bayer Materials Science Merit Fellowship
Wuqi (Amy) Niu - 2015-16 Conte Polymer Fellowship
John Epling - 2015 National Physical Science Consortium Fellowship
David Limberg - 2016 PSE50 Alumni Fellowship
Xiaoshuang (June) Wei - 2016 PSE50 Alumni Fellowship
Megan Matta - 2016 Kleiner Family Fellowship
Huyen Vu - 2016 Ananda and Ajanta Chatterjee Fellowship
Elizabeth Stubbs - 2016 Professor Richard J. Farris Scholarship



Professor Alyssa Panitch



Charles Sherwood



Murugappan Muthukumar



Allen Chang



Sarah Ward



Carolyn Zhao

GIFTS NOVEMBER 2015 - DECEMBER 2016

(1966 - 1975)

Dr. Tisato Kajiyama ('66)
Dr. Chester C. Wu ('66)
Dr. Frederick A. Emerson, Jr. ('67)
Mr. Anil Torgalkar ('67) &
Mrs. Regina Gallagher Torgalkar
Dr. Michael W. Yang ('67)
Dr. Saleh A. Jabarin ('68)
Dr. Lawrence W. McKenna, Jr. ('68)
Dr. Eugene B. Wilusz ('68)
Dr. Roy P. McKnight ('69)
Dr. Do Yeung Yoon ('69)
Dr. Ananda M. Chatterjee ('70) & Mrs. Chatterjee
Dr. James J. Tkacik ('70)
Dr. Su-Don Hong ('71)
Ms. Beata J. Abbs ('72)
Dr. Richard W. Campbell ('72) & Ms. Jeannine Campbell
Dr. Lothar W. Kleiner ('72)
Dr. Robert A. Weiss ('72)
Dr. Naveen Agarwal ('73)
Dr. Joel R. Fried ('73)
Dr. Matthew V. Tirrell ('73)
Dr. Robert J. Cembrola ('74)
Dr. Thomas R. Earnest, Jr. ('74)
Mr. Allen R. Padwa ('74)
Dr. Douglas B. Rahrig ('74)
Dr. Edward J. Roche ('74)
Dr. Thomas P. Russell ('74)
Dr. David A. Tirrell ('74) & Dr. Jane G. Tirrell
Dr. Larry S. Corley ('75)
Dr. Jehuda Greener ('75)
Dr. Rosanna Falabella ('75)

(1976 -1985)

Mr. Steven E. Keinath ('76)
Dr. Martin P. Wai ('77)
Dr. Sherrie L. Zacharius ('77)
Dr. Walter W. Adams ('78)
Dr. Varkki Chacko ('78) & Mrs. Chacko
Dr. Paul V. Grosso ('79)
Dr. James M. Jonza ('80) & Dr. Nancy N. Jonza
Dr. Tzuu-Heng B. Fu ('80)
Dr. John R. Reynolds ('80)
Dr. Michael A. Schen ('80)
Dr. Vivek K. Soni ('80) & Mrs. Ameeta Soni ('80)
Dr. Qifeng Zhou ('80)
Dr. Matthew T. Bishop ('81) & Dr. Deborah Bishop
Dr. Wayne R. Fisher ('81) & Dr. Daniella J. Fisher
Dr. Lorelle A. Gantt ('81)
Dr. Stewart Herman ('81)
Dr. Jean M. Brady ('82) & Dr. Nilesh Shah
Dr. Makarand H. Chipalkatti ('82)
Dr. Jerome F. Parmer ('82)
Dr. David A. Waldman ('83)
Dr. Elisa M. Cross ('85)
Dr. Steven D. Hudson ('85)
Dr. Michael A. Masse ('85)

(1986 - 1995)

Dr. Jeffrey S. Kollodge ('89) & Mrs. Ann J. Kollodge ('87)
Dr. Fotios Papadimitrakopoulos ('87)
Dr. Scott D. Thomas & Dr. Cristina U. Thomas ('87)
Dr. Katherine A. Bakeev ('88) & Dr. Kirill Bakeev
Dr. Christian Lietzau ('88) & Dr. Charmaine Wijeyesinghe
Dr. Eric W. Kendall ('88) & Mrs. Karen M. Kendall
Dr. Mahesh Arvind Kotnis ('88)
Dr. Kun Tong ('88)
Dr. Sridevi Narayan-Sarathy ('89)
Dr. John T. Neill ('89) & Ms. Michelle A. Neill
Dr. Robert J. Fleming ('90)
Dr. Mario A. Perez ('90) & Dr. Jaya N. Perez
Dr. Mark R. Timmins ('90)
Dr. Chester Liu ('92)
Dr. Alyssa Panitch ('92)
Dr. Shalabh Tandon ('92) & Mrs. Karla B. Tandon
Dr. James J. Watkins ('92)
Dr. Zhaohui Su ('93)
Dr. Seung J. Yu ('93) & Ms. Junghye Han
Dr. Meng C. Hsieh ('94)
Dr. Robert S. Kody ('94)
Dr. Eric R. Welsh ('94)

(1996 - 2005)

Dr. Michael J. Leonard ('98) & Mrs. Gail C. Leonard
Dr. Tao Xu ('98) & Dr. Maohua Cao
Dr. Dmytro Nykpanchuk ('99)
Dr. Alexei M. Popov ('00)
Dr. Kaoru Aou ('01)
Dr. Jayaraman Krishnamoorthy ('02)
Dr. Qingling Zhang ('02)
Dr. Wei Chen ('05) & Dr. Jia-Yu Wang ('03)
Dr. Deepak Arora ('04)
Dr. Scott A. Eastman ('04)
Dr. Derek R. Breid ('05)

(2006-2016)

Dr. Jyoti P. Mahalik ('06)
Dr. Yongping Zha ('07) & Ms. Jun Cui ('07)
Dr. Peiwen Zheng ('07)
Dr. Omkar V. Vyavahare ('09)
Dr. Zhan Hang (Henry) Yang ('08)
Dr. Kyle Bryson ('10)

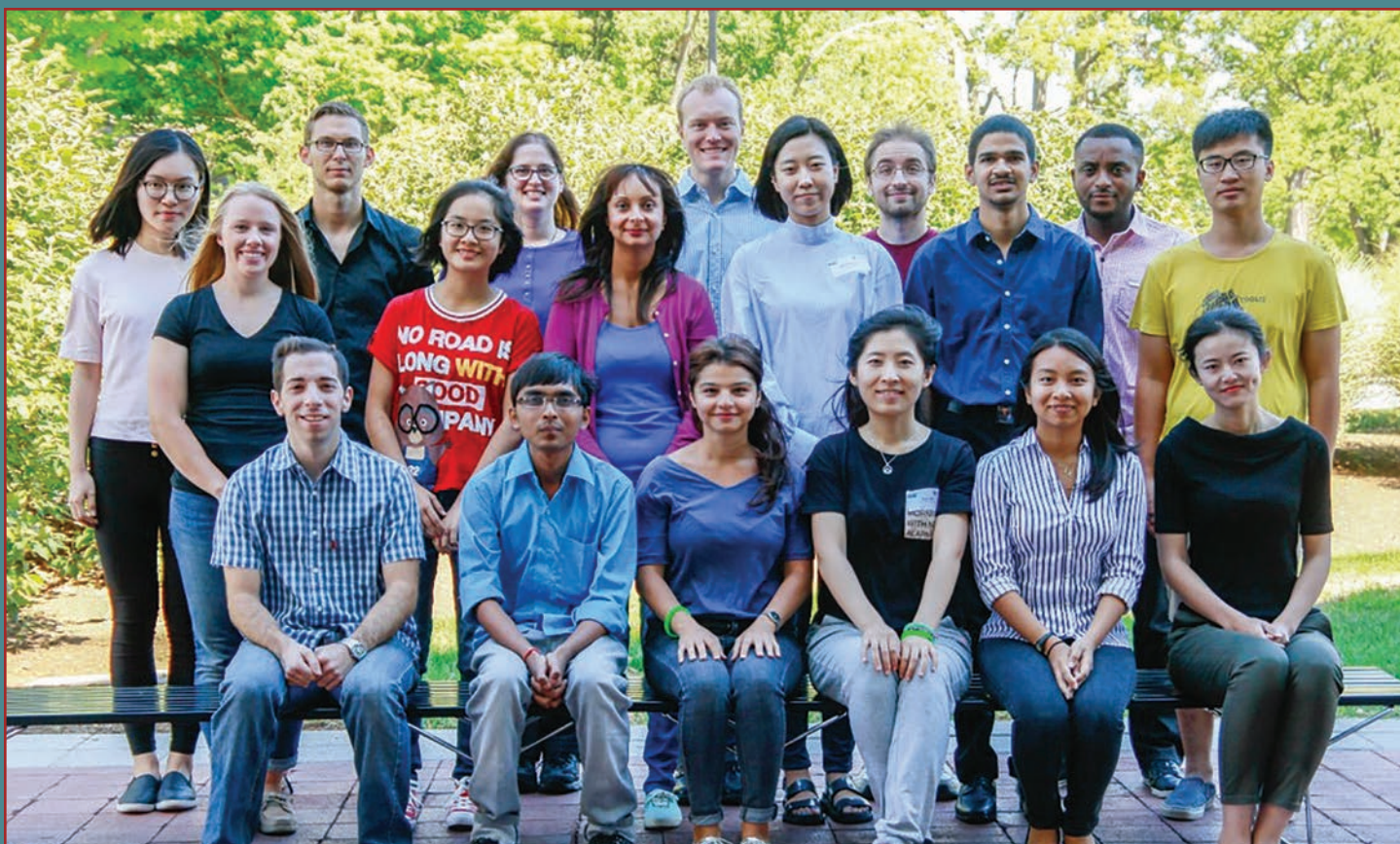
Postdocs and Friends of PSE

Mr. John J. Aklonis
Mr. Robert K. Barrett
Mr. Lawrence Chapoy
Mr. Praphul Krottapalli
Mr. Stephen N. Kukureka
Dr. Douglas H. Lenz
Mrs. Madeleine Lenz
Dr. Kazuo Sakurai
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Dr. Edwin L. Thomas
Mr. Richard J. Volungis (M.S.Chem.'55) &
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51st PSE Entering Class



(back row, from left) Xiaoshuang (June) Wei, Daniel Ohm, Megan Matta, David Limberg, Brian Montz, Kennedy Ogueri, (middle row) Elizabeth Stubbs, Yifeng Du, Hannah Meeran, Minjung Lee, Chinmay Saraf, Yao Wu, (front row) Daniel Camarda, Satyam Srivastava, Eleni Tzeiranidou, Xiyu Hu, Huyen Vu, Yan Cong
*Not pictured – Kamil Jastrzembki, Joachim Pfuhl