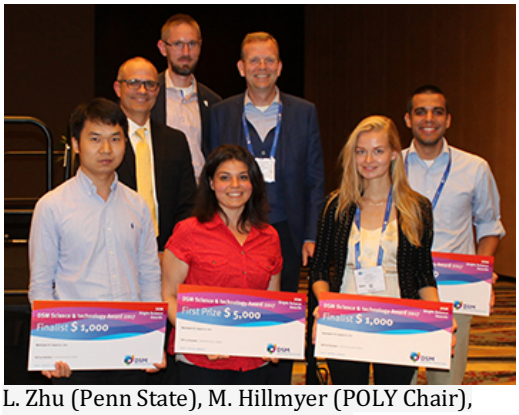
POLY Awards
DSM Science and Technology Award-Previous Awardees
2011-2020

2017 DSM Science and Technology Award

Royal DSM, the global Life Sciences and Materials Sciences company, has awarded the DSM Science and Technology Award, Americas 2017 to **Dr. Catherine Mulzer** of Cornell University (advisor W. Dichtel, Northwestern University). The theme of this year's award was Advanced Polymers in Energy Storage Applications. The DSM Award selection committee indicated that Mulzer had made a profound contribution to the field, and had communicated her research findings in a comprehensible, elegant presentation during the final symposium in Washington D.C. The Award was presented to Mulzer at the fall meeting by DSM Science Fellow Rolf van Benthem.

Mulzer was recognized for her pioneering research on the use of redox-active Covalent-Organic Frameworks as an energy storage platform. COFs are an emerging class of crystalline polymers exhibiting remarkably large surface areas owing to the highly organized, porous architectures routinely adopted. Through judicious choice of building blocks, Dr. Mulzer has shown that COFs exhibit impressive electrical conductivity after orienting the molecules and electropolymerizing a conductive polymer inside the resulting pores. The final hybrid materials also displayed high charging rates, which has been a formidable challenge in using polymeric and organic systems in electrochemical energy storage devices. This work has helped firmly establish COFs as a viable platform that rivals traditional activated carbon materials.

The other four selected finalists, who submitted excellent applications and presentations during the symposium, includ Ksenia Timachova, University of California, Berkeley (advisor: N. Balsara), "Ion transport in homogeneous and nanostructured polymer electrolytes"; Liang Zhu, Penn State University (advisor: M. Hickner), "Exploring multication side chain anion exchange membranes with varied backbones"; Jeffrey Lopez, Stanford University (advisor: Z. Bao), "High performance lithium metal anode with a soft and flowable polymer coating"; and Kelly Meek, Texas A&M University (advisor: Y. Elabd), "Chemical stability and ion transport in polymerized ionic liquid anion exchange membranes." Congratulation to all the outstanding awardees!



L. Zhu (Penn State), M. Hillmyer (POLY Chair),
L. Pitet (DSM), C. Mulzer (Cornell),
R. van Benthem (DSM), K. Timachova
(UC Berkeley), J. Lopez (Stanford)

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2014 DSM Science and Technology Award

Royal DSM, the global Life Sciences and Materials Sciences company, has awarded the DSM Science and Technology Award, Americas 2014, to **Saadyah Averick** of the Carnegie Mellon University. The theme of this year's award was Innovative Polymer Solutions for Biomedical Applications . Averick received the award for his PhD research on "The Preparation of Functional Bioconjugates Using Atom Transfer Radical Polymerization," which he conducted under supervision of Prof. Krzysztof Matyjaszewski. An international judging committee selected Averick as winner out of four finalists. The award was presented to Averick by DSM's Principal Scientist Biomedical, Aylvin Dias during the fall meeting of the American Chemical Society (ACS) in San Francisco on August 12, 2014.

The other 3 finalists who also presented their work during the symposia including Shiyi Zhang, Texas A&M University (advisor: K. Wooley), "Rapid and Versatile Construction of Polyphosphoester-based Nanostructures Designed for Various Biomedical Applications"; Michelle A. Ouimet, Rutgers University (advisor: K. Uhrich), "Biodegradable, bioactive-based polymers for controlled release applications; M. Elizabeth Welch, Cornell University (advisor: C. Ober), "Polymer Brushes as Versatile Platforms for Biosensors".

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2013 DSM Science and Technology Award

Royal DSM, the global Life Sciences and Materials Sciences company, has awarded the DSM Science and Technology Award, Americas 2013, to **Christopher M. Bates** of the University of Texas in Austin (USA). The theme of this year's award was Mastering Macromolecular Morphology. Bates received the award for his PhD research on block copolymer thin film orientation, which he conducted under supervision of Prof. C. Grant Wilson. An international judging committee selected Bates as winner out of four finalists. The award was presented to Bates by DSM's Chief Technology Officer Marcel Wubbolts during the fall meeting of the American Chemical Society (ACS) in Indianapolis on September 11, 2013.

Bates focused his PhD on the creation of self-assembly layers of block copolymers into domains of the length scale of 1 - 100 nanometers to control the interfacial energy of the surface. Thin films with these top coats applied are attractive for many applications including organic optoelectronics, nanoporous membranes and next generation lithography. The DSM award selection committee (jury) indicated that Bates has made an excellent contribution to the field of thin film materials sciences, proven by his extensive list of publications in high impact journals and 6 patents. His research has great relevance as it can lead to breakthrough developments in electronics and solar applications. Bates also impressed the jury with his clear presentation of a very complex subject matter.

The other 3 finalists presented their work during the symposia including Shiyi Zhang, Texas A&M University (advisor: K. L. Wooley), "Versatile constructions of asymmetrically-functionalized polymer nanoparticles for the self-assembly of superstructures"; Abhijeet P. Bapat, Southern Methodist University, (advisor: B. S. Sumerlin), "Dynamic-covalent star nanostructures prepared from functional block copolymers obtained by RAFT polymerization"; Erin F. Wiesenauer, University of Colorado at Boulder. (advisor: Douglas L. Gin), "Synthesis, nanostructure characterization, and gas separation membrane development of ordered, phase-separated, ionic liquid-based AB and ABC block copolymers".

Finalists: l-r: M. Wubbolts (DSM CTO), C. M. Bates (Southern Methodist Univ.), E. Wiesenauer (Univ. of Colorado), A. Bapat (Univ. of Texas-Austin), G. Tew (POLY Chair), S. Zhang (Texas A&M Univ), T. Baughman (DSM Award Coordinator)

POLY Awards
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2012 DSM Science and Technology Award

Frank Leibfarth, of the University of California-Santa Barbara, has been awarded the DSM Polymer Technology Award 2012 for his PhD research in the field of functional polymeric materials. A judging committee comprising of experts in polymer chemistry chose the winner from among four candidates selected as finalists. Frank Leibfarth has developed a platform technology in polymer chemistry based on the ketene organic functional group. The versatility of this winning research allows discrete property changes of a material upon a simple heat treatment, providing on-demand access to robust and highly functional plastics in an operationally simple manner. The modularity and cost-effective nature of this technology make it a powerful tool for chemists, materials scientists and engineers enabling old plastics to be imparted with new and complex functions. This opens up the way to innovative 'smart' plastic materials for application in areas such as microelectronics, energy, and biotechnology. The award carries a cash prize of USD $2,000. Frank Leibfarth: "I am humbled to receive the prestigious Polymer Technology Award from DSM, whose support of young scientists not only displays their commitment to the research community, but also reinforces their reputation as an innovative and forward-looking company. DSM's partnership with the Polymer Chemistry Division of the American Chemical Society and academic researchers will be critical in developing commercial products which make our world a better, more sustainable and more equitable place to live. I am honored to be part of such an effort through this award."
The other three finalists were:

- Brian Adzima - University of Colorado at Boulder. Advisor: Christopher Bowman
- Andrew Davis - University of Massachusetts at Amherst. Advisor: Kenneth Carter
- Peiwen Zheng - University of Massachusetts, Amherst. Advisor: Thomas McCarthy

All four finalists presented their PhD research at a special DSM – ACS POLY Symposium held in Philadelphia, PA on August 21 as part of the ACS Fall Meeting. Dr. Reinier Grimbergen, VP R&D at DSM and chair of the judging committee, presented the award to Frank Leibfarth at the ACS POLY awards reception held in Philadelphia on August 22. Dr. Grimbergen: "With our Polymer Technology Award we want to recognize and reward exceptional PhD research by bright young researchers working at the cutting edge of science. I was deeply impressed by the quality of the work of all four finalists of this year and by the self-assured grasp of their topics that they showed in their presentations. I am convinced that their work will help us meet the innovation needs of the future."

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2011 DSM Science and Technology Award

Cole DeForest has been awarded the First Annual DSM-ACS POLY Polymer Technology Award 2011 for his PhD research in the field of responsive polymer hydrogels under the guidance of Professor Kristi Anseth at the University of Colorado at Boulder.

A judging committee comprising of Prof. Chris Bowman (Univ. Colorado Boulder), Prof. Karen Wooley (Texas A&M), Prof. Rachel O'Reilly (Warwick University), Marc Hendriks (DSM Biomedical), & Jos Put (DSM CTO) chose the winner from among four candidates selected as finalists.

Cole DeForest has developed a synthetic methodology to synthesize novel hydrogel biomaterials whose biochemical and biophysical properties are independently tunable in both time and space and can be used to direct and probe fundamental cell function. The winning research will enable researchers to gain better insight into how cells receive complex information from their local native environment. This knowledge will aid in the development of next-generation biomaterials, which will be used as 3D cell culture materials to promote spatially-defined stem cell differentiation, as well as in the engineering of functional human tissue for regenerative medicine applications. The award carries a cash prize of $2,000.

Cole DeForest said, "I am proud to be the recipient of the inaugural DSM Polymer Technology Award, a new tradition that I hope will carry on for many years to come. This award represents a strong commitment from DSM to new and ongoing partnerships with the academic world, which will be crucial in the continued development and commercialization of innovative chemical products for many years to come. It is an honor to be selected for such a fabulous award."

The other three finalists were: Joshua Katz, James Kretlow and Timothy Merkel. All four finalists presented their PhD research at a special DSM – ACS POLY Symposium held in Denver.

Dr Put said, "DSM wants to recognize and reward exceptional achievements in science, both by our own employees and by talents working outside DSM. That is why we have our Bright Science Awards program. The Polymer Technology Award that we have introduced this year in the USA fits in our global strategy and is meant to support and reinforce our interaction with the academic world in the US."

Joshua Katz (Award Finalist), Cole DeForest (Award Winner), James Kretlow (Award Finalist), Timothy Merkel (Award Finalist), Travis Baughman (DSM-POLY Award Coordinator)