The 2018 Peter Debye Prize for Young Investigators in Dielectric Research awarded to MSU chemical engineer

A chemical engineer at Michigan State University was presented the 2018 Peter Debye Prize for Young Investigators in Dielectric Research by the International Dielectric Society, sharing the honor with a researcher from Europe. Shiwang Cheng was recognized for his “significant results on polymer nanocomposites.”

The presentation was made during the International Dielectric Society’s Broadband Dielectric Spectroscopy Conference in Brussels, Belgium, from Aug. 26-31. Also honored with the 2018 Young Investigators Award was Karolina Adrjanowicz of the University of Silesia in Poland.

Cheng is an assistant professor of chemical engineering and materials science. He has developed a working protocol providing quantitative analysis of the interfacial dynamics, characteristic thickness of the interfacial layer, their temperature variations, and dependence on chain rigidity, molecular weight and nanoparticle size.

At MSU, his research focuses on the fundamental understanding of the mechanics and dynamics of polymers at the interfaces in various multi-component systems. One of his current goals is to unravel and integrate the structure-properties of polymers at the interfaces to novel design strategies for better polymer nanocomposites.

His research bridges a gap of \( \sim 10^6 \) from properties at nanometer scale to millimeter length scale. In addition, he is also aiming to utilize his newly developed protocols to address many emerging environment, energy, and manufacturing challenges, where the interfacial properties play essential roles, such as gas separation, energy storage, and additive manufacturing.

Donald Morelli, chair of the Department of Chemical Engineering and Materials Science, said Cheng is establishing
important new capabilities in polymers and composites research in his laboratory at MSU.

“We are very proud of his accomplishments and it is a great honor for the department and the university to receive this international recognition,” Morelli added.

Cheng received a PhD in polymer science from the University of Akron and a bachelor’s degree in macromolecular science and engineering from the University of Science and Technology of China.

The International Dielectric Society provides for the exchange of theory, information and techniques in the field of Dielectrics, Dielectric Spectroscopy and Applications. Read more on its goals and the Peter Debye Prize.

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