John Verboncoeur

March 28, 2018

Associate dean for research to receive international distinguished member award from IEEE's Nuclear and Plasma Sciences Society

John Verboncoeur of Michigan State University will receive the Richard F. Shea Distinguished Member Award from the Nuclear and Plasma Sciences Society (NPSS) of the Institute of Electrical and Electronic Engineers (IEEE) during ceremonies in June. Only one award is presented internationally each year.

Verboncoeur is associate dean for research in the College of Engineering, and a professor of electrical and computer engineering, and computational mathematics, science and engineering.

“I am very proud of John’s willingness to step up and lead both within the college and within his professional society,” said Leo Kempel, dean of the College of Engineering. “He exemplifies the very best in a senior faculty member at a land-grant university.”

At MSU, Verboncoeur leads the Plasma Theory and Simulation Group. His research interests include theoretical and computational plasma physics, with a broad range of applications spanning from low-temperature plasmas for lighting, thrusters, and materials processing to hot plasmas for fusion, from low-current particle accelerators to intense-current microwave sources.

He oversees a growing research enterprise among the College of Engineering’s 225 faculty members, up from 167 when he became associate dean 3.5 years ago. The college’s annual research expenditures doubled in less than a decade to more than $56.5 million, now growing 7.5 percent per year.

He joined MSU as a professor in the Department of Electrical and Computer Engineering in 2011, after serving for 15
years as a faculty member in the Department of Nuclear Engineering at the University of California-Berkeley. He chaired the Computational Engineering Science program at Berkeley from 2001-2010.

Verboncoeur has more than 30 years experience developing and applying kinetic particle simulation tools. He has more than 90 journal publications in computational plasmas and applications, in addition to more than 300 conference publications, and five book chapters. He is a fellow of the Institute of Electrical and Electronic Engineers (IEEE) and is past president of the IEEE Nuclear and Plasma Science Society, and an IEEE Director-elect.

He pioneered several key technologies in the area, including the first self-consistent model for plasmas bounded by electrodes connected to real driving circuits, the first interactive graphical user interface, and the first object-oriented plasma model. His group also developed the first time-dependent explanation of the transition of multipactor breakdown to gaseous discharge, as well as a novel kinetic global model. His work has been cited nearly 4000 times in a relatively small research community, indicating a high impact.

The Richard F. Shea Distinguished Member Award will be presented at the IEEE ICOPS 2018 meeting in Denver, June 24-28, 2018. The citation honoring him reads: “For outstanding contributions and leadership to IEEE NPSS as president, to IEEE Technical Activities for beginning and developing the Food Engineering/ Smart Ag Initiative, and to IEEE for leading an educational effort to retain our current constitution.”

Verboncoeur received a bachelor’s degree with high honors in engineering science at the University of Florida. He received a Magnetic Fusion Energy Technology Fellowship from the U.S. Department of Energy to attend the University of California at Berkeley, where he earned a master’s degree and PhD in nuclear engineering.

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