

2020 Gaede-Langmuir Awardee: David Ruzic - "For the invention and commercialization of physical vapor deposition magnetrons and power supplies specifically for high-power impulse magnetron sputtering"

By Abby Rizzo

AVS has honored the extraordinary contributions of Dr. David Ruzic, University of Illinois at Urbana-Champaign, with the 2020 Gaede-Langmuir Award. This Award recognizes and encourages outstanding discoveries and inventions in the sciences and technologies of interest to AVS, and was established in 1977 by an endowing grant from Dr. Kenneth C.D. Hickman. Today we have the opportunity to get to know David a little better, as he graciously granted AVS an interview.



David became affiliated with AVS when he attended his first conference as a graduate student in 1981, and the "student membership discount" motivated him to join. He has since stayed involved with AVS, sharing his time and talents serving as Plasma Science and Technology Division Chair (1991 – 1992), as *JVST A and B* Associate Editor (1994 – 2000), on the Advanced Surface Engineering Division Executive Committee (2000 – 2006), as Plasma Science and Technology Division International Vacuum Union Representative (2000 – 2003), as International Plasma Science and Technology Division Chair (2004 – 2009), and as International Union of Vacuum Science, Techniques, and Applications (IUVSTA) Scientific Director (2009-2018).

David is the Abel Bliss Professor of Engineering and is in the Nuclear, Plasma and Radiological Engineering department at the University of Illinois at Urbana-Champaign. David's typical day encompasses a variety of activities, and he views communicating with others as his primary occupation across those activities. David oversees 12 graduate students and two post-docs, all doing experimental work. So, his main responsibilities to the students include reviewing their progress and advising them one-on-one. David identifies teaching as his favorite part of his work. He enjoys seeing his students succeed, and it excites him to see the positive impact of their work together upon the world. Further research about David's teaching revealed comments like, "Prof. Ruzic walks on water," which referenced his teaching of students about the concept of surface tension. Also, his University biography mentions his love of teaching, and that he "tries to blow something up during every lecture." Great teachers create enthusiasm in their students, and David clearly works hard to do so.

Another big part of David's work involves pursuing funding, his least favorite aspect of his work, for both present and future research. He shares his research results in meetings around the world and in classes at the University. David humorously explained about his research results, "since my main job is to talk to people, to have something worthwhile to talk about, I usually work a few hours every night writing." David also holds the position of Director for the Center for Plasma Material Interactions (CPMI) at the University and now the Director of the Illinois Plasma Institute (IPI). David started both CPMI and IPI, and striving to make them successful is currently his highest priority. Additionally, he has served on numerous committees at the University, given countless conference lectures, worked with an array of visiting scientists, acted

as a patent consultant, written hundreds of refereed journal articles, authored and edited numerous books (including one co-authored with his father, Neil Ruzic), and created over a dozen patents. Surprisingly, this is by no means an exhaustive list of his efforts!

David works across many fields, and has received wide recognition for his accomplishments. He has become particularly well known in the field of using lithium in fusion energy devices. For his exemplary contributions, David was named a Fellow of the Hertz Foundation (1979), American Nuclear Society (2004), the American Vacuum Society (2007), the American Physical Society (2014), and the Society of Photonic and Optics Engineering (SPIE) in 2019. Additionally, he has earned innumerable teaching and research honors, including the AVS Plasma Science & Technology Division Plasma Prize (2012). This year in addition to this AVS award, he has been honored with the top international Fusion Technology Award from IEEE.

With his breadth of experience, David gives the following piece of advice for future generations. "Give credit to the ones you work with and who work for you. Help them succeed and you will prosper, as well. Most importantly, enjoy what you are doing on a daily basis." Wise advice from someone who knows well about creating great relationships and finding career satisfaction.

Dr. David Ruzic is a deserving awardee, and we hope you will join AVS in congratulating him!