



Union Internationale Pour La Science, La Technique et Les Applications du Vide
International Union for Vacuum Science, Technique and Applications
Internationale Union für Vakuum Forschung, Technik und Anwendung



Professor Joe Greene
Nov. 25, 1944 - Oct.10, 2022

Our dear friend, colleague, and an IUVSTA supporter for over 30 years, Joe Greene passed away on October 10, 2022.

Joe Greene, born in Arcata, California, was a professor of Materials Science and Physics at the University of Illinois at Urbana-Champaign (USA). He also held professorships at Linköping University (Sweden) and at National Taiwan University of Science and Technology (Taiwan).

Joe Greene's career has spanned more than five decades and during that time his scientific output has consisted of over 625 research and review articles, 29 book chapters, four co-edited books, 525 invited talks, and 140 plenary lectures. He is widely recognized as one of the pillars of the thin film and surface engineering community.

A primary focus of his research has been "the development of an atomic-level understanding of adatom/surface interactions during vapor-phase crystal growth".

He has also developed a new class of metastable semiconducting alloys, which have come to be known as

"Greene alloys". In addition, his work on the development of Si atomic layer epitaxy (ALE), including mapping the basic surface science of Si ALE, are considered seminal contributions in that field and the real-world application of these studies "has since been implemented by electronic companies in the United States and Japan".

Greene and his research team conducted the first systematic study of the effects of the ion/metal flux ratio and ion energy on microstructure evolution in hard coatings. Their determinations of the properties of this class of materials are considered reference standards in the field.

Joe Greene also had outstanding accomplishments as a teacher and mentor. He has supervised over 70 PhD students mainly at the University of Illinois, Linköping University and National Taiwan University of Science and Technology. He has hosted over a 100 visiting scientists and post-doctoral researchers. Joe received the 1998 Aristotle Mentor Award from Semiconductor Research Consortium and the Society of Vacuum Coaters Mentor Award (2015). Joe taught several short courses on thin films, physics, surface and nanoscience, which have been attended by thousands of students around the globe from industry and academia. Joe's students have won over 40 major society awards from the American Vacuum Society (AVS), the International Conference of Metallurgical Coatings and Thin Films (ICMCTF), the Materials Research Society (MRS), and American Physical Society (APS). Joe has been generously supporting the careers of his students and collaborators with valuable advice, recommendation letters, and award nominations. There is a whole cohort



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of scientists who have come out of Joe's school who are now leaders in their own right in academia and industry.

Joe has received numerous awards, including the major awards of APS, MRS, AVS, and SVC. He was Fellow of AVS, APS, and MRS and was an elected Member of the US National Academy of Engineering and the European Academy of Sciences. He was awarded the John A. Thornton Prize for "Outstanding Research in Thin Film Science" from the American Vacuum Society in 1991 and received the Tage Erlander Award from the Swedish Natural Science Research Council. In addition, Professor Greene received a lifetime achievement award from the Taiwan Association for Coating and Thin Film Technology. Joe's passion for history of science led him, in recent years, to publish a series of scholarly articles on the recorded history of sputter deposition, organic thin films, and inorganic thin films. This series was acknowledged by his receiving the 2016 George Sarton Award and Lecture, presented by the History of Science Society for lifetime scholarly achievement. Joe was also named the 2016 George Sarton Chair for the History of Science at Ghent University, Ghent, Belgium. In September 2022, Joe was awarded the Jan Czocharski Award by the European Materials Research Society in recognition and acknowledgement for his Lifetime Achievements in Materials Science.

Joe Greene was Editor-in-Chief of Thin Solid Films and past Editor of CRC Critical Reviews in Solid State and Materials Sciences. Joe was an unsurpassed writer with a style that is characterized by logic, conciseness, and elegance. As a Director of Frederick Seitz Materials Research Laboratory at the University of Illinois, he elevated the research program to new heights, including building its Center for Microanalysis of Materials as a prominent National User Facility.

Joe's contribution to societies and his service to the scientific community are legendary. His visionary leadership activity in the AVS, for which he was a Past-President, has contributed significantly to making it the internationally society in the field of vacuum-based science and technology. He has served for decades in leading roles in the Advanced Surface Engineering Division (ASED) of the AVS and its major conference ICMCTF. He has helped develop ICMCTF to the premier international event in the field. His impact on this annual meeting and his ability to educate attendees in the spirit of cooperation and friendship have made ICMCTF and San Diego the home of generations of colleagues from academia, governmental institutions, and industry. In 2019, the ICMCTF community awarded him the Bunshah Award, the highest ASED recognition, for his lifetime achievements.

Joe Greene has been involved in IUVSTA since 1986, when he was appointed the USA representative for the Thin Films Division. He has been vice-chair of this division from 1986 to 1989, chair from 1989 to 1992, chair of the Education committee from 1992 to 2001, alternate councilor for the USA from 2002 to 2004, councilor for the USA from 2004 to 2020 and chair of the Emerging Societies Committee from 2010 to 2019. Joe Greene was also program chair and committee member of many international IUVSTA conferences.

He will always be in our hearts, and in our thoughts.

François Reniers and Ivan Petrov