

You are invited to the first  
***Nagib and Kalpakjian Annual Lecture  
on Manufacturing***

*Hosted by Mechanical, Materials, and Aerospace Engineering, IIT*

**Dr. Steven Schmid**

Professor, Department of Aerospace and Mechanical Engineering,  
University of Notre Dame

**Wednesday, November 6, 2019**

3:30–4:30 pm

Rettaliata Engineering Center, Crawford Auditorium  
10 W. 32<sup>nd</sup> Street, Chicago, IL 60616

*Free and open to the public, reception following lecture*

*Complimentary parking available*

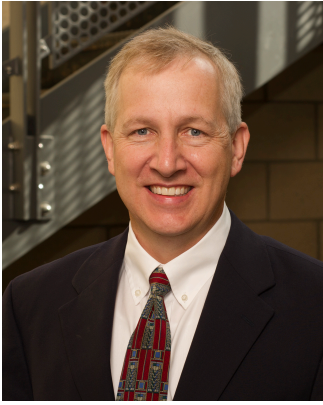
*For questions, email Elena at [magnus@iit.edu](mailto:magnus@iit.edu)*

## **Manufacturing Research in America: The Legacy of Serope Kalpakjian**

Serope Kalpakjian has been at the focal point of modern manufacturing research since he studied and worked under M. Eugene Merchant and Milton Shaw as a young engineer at Cincinnati Milacron. For decades, he and a few of his colleagues have worked hard to continue efforts to educate each young generation in such a critical activity as manufacturing. Included in his lifelong efforts is his help in the establishment of the North American Manufacturing Research Institution, which is now a very successful and hosts a major annual event worldwide. The manufacturing landscape presently includes new and expanded programs at NSF, DOE, and DOD, as well as the Manufacturing USA program. Dr. Schmid's talk will outline the exciting opportunities in manufacturing research, and will highlight his activities in additive manufacturing, specifically in selective laser melting. A new trend involves reuse of powder and the innovative approaches for producing wear-resistant materials, without the need for such costly operations as hot isostatic pressing. Powder reuse has been receiving significant attention as a method of controlling material cost in additive manufacturing, but has been elusive for controlled industries such as medical devices and aerospace engineering. Process validation has been demonstrated for both static and fatigue properties of important stainless steels and titanium alloys. In addition, process variations to produce wear-resistant materials in selective laser melting will be discussed, including successful approaches for ultra-high molecular weight polyethylene.



## STEVEN SCHMID



received his B.S. in Mechanical Engineering at the IIT in 1986, followed by MS and PhD degrees from Northwestern University in 1989 and 1993. In 1993, he joined the AME Dept. at the University of Notre Dame, where he is currently a Full Professor. In January 2020, he will become the Belk-Woodward Distinguished Professor of Engineering at the University of North Carolina at Charlotte. He performs research and teaches courses in the general fields of manufacturing, additive manufacturing, metal forming, tribology (including micro/nanotribology), and design, especially as applied to orthopedic implants. He was awarded the department and college teaching awards five times and named a Kaneb Teaching Fellow in 2002. Among his awards are the NSF CAREER award, the SME John T. Parsons award, the ASME Newkirk Award, and the SME Gold Medal. He has received numerous best paper awards.

In 2012-13, he was the first Faculty Fellow and served as the Associate Director for Research Partnerships at the Advanced Manufacturing National Program Office (AMNPO) at the Department of Commerce, where he helped design the National Network for Manufacturing Innovation, currently known as Manufacturing USA. From 2016-19 he was the Program Director for Manufacturing Machines and Equipment in the Civil, Mechanical and Manufacturing Innovation Division at NSF, which he reorganized into the Advanced Manufacturing Program. He started the Blue Skies Program at SME, is the Chair of the Manufacturing Public Policy Committee at ASME, and was elected to the SME Board in 2019.

Dr. Schmid has co-authored 21 books chapters, with three more pending, and has written over 100 peer-reviewed journal papers and over 150 conference papers and invited presentations. Of his textbooks, *Manufacturing Engineering and Technology* (with S. Kalpakjian) is the world's most popular manufacturing textbook and is available in Spanish, Chinese, Italian, German, and other international editions. *Manufacturing Processes for Engineering Materials* (with S. Kalpakjian), *Fundamentals of Machine Elements* and *Fundamentals of Fluid Film Lubrication* (with B. Hamrock and B. Jacobson) are selected titles of other books.

## SEROPE KALPAKJIAN



is a graduate of Robert College, Istanbul, High Honors (1949), Harvard (1951), and MIT (1953). He was first employed at Cincinnati Milling Machine Company, working on advanced manufacturing processes, including his development of parts for the engine of the Concord supersonic aircraft, in England. In 1963 he joined the Mechanical and Aerospace Engineering Department at IIT, where he conducted basic research on manufacturing processes.

Among his awards are the ASME Centennial Medallion, the Distinguished Teacher Award from ASM International, the Excellence in Teaching and A Person of the Millennium Award from IIT, and the International Education Award and the Gold Medal from SME. A founding member and past president of the North American Manufacturing Research Institution, he is a Fellow of ASME, SME, ASM International,

and the International Academy for Production Engineering (CIRP).

Professor Kalpakjian has written two well-known books, *Manufacturing Processes for Engineering Materials* and *Manufacturing Engineering and Technology*, both of which received the M.E. Merchant Manufacturing Textbook Award of SME. He is the author of numerous technical papers, articles, and contributions to various books, handbooks, encyclopedias, and has served on the editorial board of *Encyclopedia Americana*. In 1997, he gave a well-received Commencement address at IIT. His tenure at the university established him as an applied researcher, author, educator, mentor to students, engaging speaker, and a leader of his profession.

