



College of Engineering
Department of
Mechanical & Industrial Engineering



The Sidney E. Fuchs Seminar Series

3:00-3:50pm, Friday, March 11th, 2016
Frank H. Walk Design Presentation Room

Education and America's High-Technology Industries

by **Harry J. Levinson***



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GLOBALFOUNDRIES**

America's high-technology industries have become very reliant on engineers who received their K-12 education outside of the US. This is evident when examining the backgrounds of graduate students in America's leading research universities, as these people are often hired by American businesses. The significant decline in the percentage of American students who are able to become engineers, particularly ones with advanced degrees, can be traced to changes in K-12 education in the US, particularly for the subjects of mathematics and reading. Without appropriate foundations in math and reading, students are limited in their ability to learn more advanced subjects. It is important for professionals in technical fields to provide perspective on the limitations created by certain pedagogical methods. At the university level, a culture of greater intellectual rigor will also bring improvements.

* Dr. Levinson spent most of his career working in the field of lithography, starting at AMD. He then worked at Sierra Semiconductor and IBM before returning to AMD – now GLOBALFOUNDRIES – in 1994. He served for several years as chairman of the USA Lithography Technology Working Group that partly generated the lithography chapter of the International Technology Roadmap for Semiconductors. He has published numerous articles on lithographic science, on topics ranging from thin film optical effects and metrics for imaging, to overlay and process control, and he is the author of two books, *Lithography Process Control* and *Principles of Lithography*. He holds over 60 US patents, is an SPIE Fellow, previously chaired the SPIE Publications Committee, and served on SPIE's Board of Directors. In recognition of his contributions to SPIE, Dr. Levinson received the Society's 2014 Directors' Award. He has a BS in engineering from Cornell University and a PhD in physics from the University of Pennsylvania. His PhD thesis, titled *Resonances and Collective Effects in Photoemission*, addressed phenomena involving interactions of light and matter. For this work he received the Wayne B. Nottingham Prize in surface science.