

Noted glass scientist Manoj Choudhary to deliver Scholes Lecture April 19

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Manoj Choudhary

Dr. Manoj Choudhary, the president of the International Commission on Glass (ICG), will deliver the Samuel R. Scholes Jr. Lecture at 11:20 p.m. Thursday, April 19, in Holmes Auditorium, Harder Hall, on the Alfred University campus. Choudhary's topic is "Modern Materials Practice: Innovation through Modeling and Simulation."

"The lecture will illustrate industrial application of advanced continuum-based models in conjunction with material-specific constitutive relations for process and product development," said Choudhary. He will describe case studies involving glass and polymeric processes and products. "Specifically, on the process side, the lecture will describe developments of a fiberglass insulation product for cold temperature application and a nano-graphite containing, extruded polystyrene product with enhanced thermal and mechanical properties."

The title of the lecture is, as Dr. Choudhary explains it, "a grateful tribute to Dr. Samuel R. Scholes Sr. for writing the highly acclaimed text, "Modern Glass Practice." Through his seminal textbook and others he authored, "Prof. Scholes, an eminent scholar, educator, and industrial glass scientist trained generations of students and had a profound effect on the U.S. glass industry."

Choudhary decided to include materials other than glass in his lecture both because it reflects his own experience, and the recognition that the Kazuo Inamori School of Engineering at Alfred University includes educational and research programs for a broad range of materials. "The theme of the lecture, namely materials process and product innovation, is also very much in the spirit of what Dr. Scholes consistently emphasized during his long and illustrious career."

He notes that when Scholes published the seventh and final revision of "Modern Glass Practice" in 1975, the era of computer-aided mathematical modeling of materials processes in general and glass-making in particular was just beginning, Choudhary noted. "Since then, the phenomenal advances in digital electronics have resulted in development of sophisticated tools and techniques that allow us to simulate the behavior of materials processes and

products in increasingly predictive ways. The models in use now span a broad spectrum of spatial and temporal domains. Quantum mechanical and atomistic scale simulations constitute one end of this spectrum, the fundamental end.

“Simulations dealing with large data sets and using techniques such as statistical analysis, neural networks, and genetic algorithm constitute the opposite, empirically dominated end of the spectrum. Engineering and manufacturing applications of scientific fundamentals were of primary interest to Dr. Scholes. These are typically handled by continuum models, which are roughly in the middle of the spectrum of models and are used extensively for process and product development, design, and engineering.”

Choudhary, who earned his Doctor of Science degree in materials science and engineering from the Massachusetts Institute of Technology, is a Fellow of the British Society of Glass Technology, and a Fellow of the American Ceramic Society. In addition to being president of the ICG, Choudhary has presided over several professional organizations, including the advisory board for the Industry-University Center for Glass Research at Alfred University, the Glass and Optical Materials Division of the American Ceramic Society, and the Glass Manufacturing Council, of which he is a founder. He is a member of the Board of Trustees of the American Ceramic Society and a specially appointed professor of China State Key Laboratory of Advanced Technology for Float Glass.

His professional interests include development of innovative materials processes and products through the application of engineering fundamentals, physics, chemistry, materials science, and advanced computational approaches. He worked at Owens Corning&s Science and Technology Center in Granville, OH, from September 1982 to February 2-18 and was a member of its senior technical staff.

He laid the foundations for advanced fluid dynamics (CFD) based simulation of several key materials processes at Owens Corning, including glass melting and polymeric foam extrusion. His contributions were at the core of some of the most significant glass and polymer process technology and development at the company during the past 35 years.

He has authored more than 60 technical reports at OC, published 57 papers and holds 10 current and pending patents.

Choudhary has received several awards and honors for his academic and professional achievements. These include Falih N. Darmara Award from the MIT Materials Science and Engineering Department and the Prof. S.K. Nandi Gold Medal from the Indian Institute of Technology. He was tapped to deliver the Friedburg Memorial Lecture at the American Ceramic Society and several times received Owens Corning&s highest Technical Achievement Awards.

He is a registered professional engineer in the state of Ohio.

The Samuel R. Scholes Sr. Lecture is delivered annually by a noted glass scientist. It honors the memory of Samuel R. Scholes Sr., who founded the glass technology program at Alfred University in 1932; that has since evolved into the glass science program. Alfred University&s Inamori School of Engineering is the only U.S. institution to offer a Ph.D. degree in glass science.