

**CENTER FOR MATERIALS PROCESSING AND TRIBOLOGY
SEMINAR**

Thursday, April 21, 10:15 AM, Grissom Hall 210

**INTERACTIVE CO-CONSTRUCTION OF CONTEXTUAL UNDERSTANDING:
A FRONTIER OF ENGINEERING EDUCATION**

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Abstract: The rising costs and declining job prospects have created a "bubble" much like the one in the housing market that led to the current global economic crisis. Competitions from for-profit institutions that lessen the time and costs of education further threaten the sustainability of present-day universities as a degree production enterprise. This higher education crisis is most burning in engineering, where hyper competition and pervasive globalization have resulted in many technological markets being over-supplied (e.g., product functions exceed customer purposes). Unlike the old under-supplied era when "production" based on content knowledge of the Nature was the key, an over-supplied economy calls for "innovation" derived from contextual understanding of the customer. The entire engineering education must transcend from lecturing technical contents locally to learning socio-technical contexts globally in the 21st century.

Unlike "contents" that can be taught by teachers in local classroom, global "context" must be co-constructed by students via interaction, which could further increase the costs and time of higher education. To overcome this dilemma, the USC Viterbi School of Engineering established the Viterbi i-Podia™ (ViP) global education program, where "i" stands for interactive, international, innovative, and combinations of the above. The goal of ViP is to explore the frontier of 21st century engineering education that changes "teacher-focused" instruction to "learner-centered" interaction, expands "cross-disciplinary" emphasis to "cross-cultural" focus, and evolves "distance education" practice to "no-distance learning" environment. This presentation will introduce the i-Podia™ value proposition, pedagogical foundation, learning infrastructure, and pilot successes to date. The talk will conclude with a World-classroom vision that transforms world-class universities to become "a borderless learning community where students from anywhere can study any subjects interactively and collaboratively on their own campus with, and from, the best classmates from any leading institutions around the globe anytime."

About the Speaker: Dr. Stephen C-Y. Lu is the permanent holder of the David Packard Chair in Manufacturing Engineering at USC. At Viterbi School of Engineering, he is the Director of the Product Development Engineering Program, the Viterbi i-Podium™ Program, and the Founding Director of the IMPACT Research Laboratory where basic research in design thinking, technological innovation and collaborative engineering are pursued. Before joining USC, he was a full professor of Mechanical and Industrial Engineering and Computer Science at the University of Illinois at Urbana-Champaign (UIUC), and the Director of Knowledge-based Engineering Systems Research Laboratory. He was a visiting professor at MIT, Technical University, Berlin, Shanghai Jiao-tong University and KAIST, and an honorary professor at six foreign universities. Dr. Lu was the Chairman of the Technical Advisory Committee of SAVE/JAST program at Lockheed-Martin Co. which designed and developed the next generation fighter aircrafts for the U.S. military. He has published over 320 technical papers, books and chapters, served on many journals' editorial boards, including the Chief Editor of the International Journal of Collaborative Engineering. He is an elected full Fellow of CIRP (International Academy of Production Engineering), has served as the Chairman of CIRP's Design Scientific and Technical Committee and the Chairperson of CIRP-ECN Working Group. For his technical contributions, he has received many prestigious domestic and international awards, including two Presidential recognitions in USA and Germany.

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