

Sidney E. Fuchs Seminar Series
NSFEPSCoR Consortium for Innovation in
Manufacturing and Materials (CIMM) Joint Seminar

3:00-3:50pm, Friday, January 29th, 2016
Frank H. Walk Design Presentation Room

Integration of Innovative Manufacturing
Processes, Mechanics and Materials Design for
Energy Efficient Distributed Manufacturing

by **Jian Cao***

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Manufacturing plays a critical role in sustainability and economy. The future of manufacturing is envisioned to be a mixture of distributed manufacturing and concentrated manufacturing modes. At the Advanced Manufacturing Processes Laboratory at Northwestern, research projects metal into a three dimensional result of point by point deformation through an active control of two genetic tools, one on each side of the sheet. DSIF eliminates the need for geometric specific tooling and has shown great process flexibility along with a significant increase in forming limit. These advantages have placed DSIF as an alternative for enabling lightening the weight of sheet metal parts. Recent mechanism and process innovations to increase g

Jian Cao received her Ph.D. in Mechanical Engineering from Northwestern University. She is currently an Associate Professor of Mechanical Engineering, Director of the Center for Innovation, and an Associate Vice President for Research and Technical Advisory Committee of the newly established Center for Innovation in Chicago. She was a co-director of the NSF STC on Micro/Nano manufacturing. During her tenure at General Motors and a two-year leave at the National Science Foundation, her research interests include innovative manufacturing processes and laser assisted manufacturing. Her research has integrated advanced sensors, and design methodologies to advance dieless forming, micro-forming, laser ablation pro