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LECTURES

Prof. John Hart

MIT - Massachusetts Institute of Technology

Adventures in Extrusion Additive Manufacturing

Progetto Rocca MIT-Italy Seed Funds
SAMM – Smart Additive Manufacturing for Metals

June 15th, 2018
2:00 pm

Sala Consiglio
Dipartimento di Meccanica
Via La Masa 1, Milano

Abstract

Additive manufacturing (AM) is an ideal synergy of machines, materials, and computation; and AM is poised to transform how products are designed, engineered, and delivered across the globe. Each of the many well-known AM processes will grow in value and significance, and there remains great opportunity to advance the fundamental capabilities of AM by research performed in the context of important market needs.

In this seminar I will discuss our recent work spanning the spectrum of extrusion AM, including: the invention of a high-speed desktop extrusion printer that can produce handheld polymer and composite parts in 5-10 minutes; evaporative extrusion processes for 3D self-assembly of colloidal particles and cellulose-based materials; and commercial development of an extrusion-based metal AM process at the startup company Desktop Metal. I will close with a summary of our AM education initiatives at MIT, including a new digitally delivered professional course.

Speaker short CV

John Hart is Associate Professor of Mechanical Engineering, Director of the Laboratory for Manufacturing and Productivity, and Director of the Center for Additive and Digital Advanced Production Technologies (ADAPT) at MIT. John's research group, the Mechanosynthesis Group, aims to accelerate the science and technology of advanced manufacturing in areas including additive manufacturing, nanostructured materials, and the integration of computation and automation in process discovery.

He has also co-founded three advanced manufacturing startup companies and launched the world's first massive open online course on manufacturing processes (MIT 2.008x on edX). John has been recognized by prestigious awards from the United States NSF, ONR, AFOSR, DARPA, ASME, and SME, by two R&D 100 awards, and most recently by the MIT Ruth and Joel Spira Award for Distinguished Teaching in Mechanical Engineering and the MIT Keenan Award for Innovation in Undergraduate Education.

Contact and registration:
phd-dmec@polimi.it