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Printing Soft and Living Matter in Three Dimensions

Time: 2:30 - 4:00 PM

Location: L2D2

Engineering Lecture Hall



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ABSTRACT:

The ability to pattern soft and living matter in three dimensions is of critical importance for several emerging applications. In this talk, I will begin by describing the design of printable materials for direct and embedded 3D printing. I will then introduce representative functional and structural inks as well as sophisticated printhead designs for fabricating soft materials ranging from printed electronics to robotic matter. Finally, I will describe our recent efforts to create vascularized human tissues through the tight integration of stem cell biology, organoid building blocks, and bioprinting.

BIOGRAPHY:

Jennifer A. Lewis is the Jianmin Yu Professor of Arts and Sciences, the Wyss Professor for Biologically Inspired Engineering in the Paulson School of Engineering and Applied Sciences, a core faculty member of the Wyss Institute, Bioengineering Chair, and MRSEC Director at Harvard University. Her research focuses on the digital manufacturing of functional, structural, and biological materials. Multiple startups are commercializing technology from her lab ranging from 3D printed electronics to kidney therapeutics. She is an elected member of the National Academy of Sciences, National Academy of Engineering, National Academy of Inventors, and the American Academy of Arts and Sciences. Lewis has received numerous awards for her work, including the 2025 NAS James Prize for Science and Technology Integration.