

**Mercredi 17 avril 2019**

**11h00**

Amphithéâtre du C2N

**“ New Developments in the Application of Focused Ion Beam Technology –  
Sources + Computation + Ions = Better FIB Science.”**

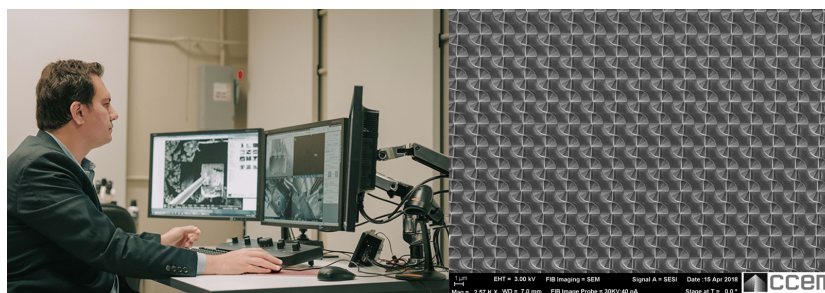
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Focused Ion Beam (FIB) technology has much of its roots in the semiconductor industry, for circuit edit, mask repair and, later for TEM lamella sample preparation. Powered by its long-standing front-running ion source technology, the gallium-based liquid metal ion source, FIB has been developed for a number of applications beyond sample preparation, including serial sectioning, in situ techniques, and direct-write patterning. Furthermore, in recent years, the two major developments have opened new avenues of research in FIB technology: the first is the rapid development of new source technologies, including plasma sources, liquid metal alloy sources, and gas field ion sources, which brings much of the periodic table to bear for novel applications. The second is the advent of computational microscopy, in which scanning systems are evolving to allow high-speed characterization and on-the-fly adjustment during FIB and electron source use.

In this talk, I will show how these two new developments have expanded the boundaries of our thinking about FIB technology through several examples. The first is in the development of new electronic and optical materials based on ion implantation using novel sources and direct-write lithography. Following, this, I will demonstrate serial sectioning methods using plasma FIB for large-volume mesoscale applications. We will show that data processing and the use of on-the-fly sparse scanning with offline reconstructions can make dealing with large datasets more feasible and faster.



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**Ph.D.:** University of Florida

08/2016–  
present

2008–2016

2006–2007

2003–2006

2002

