Enabling Next-Generation Focused Ion Beam Applications Through Advanced Beam Control

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Along with improvements in SEM, latest generation ion beam technologies, be they classic LMIS Ga-FIB or GFIS He/Ne, are pushing the boundaries of nanofabrication as well as two and three dimensional data acquisition. In addition to the significant improvements to be gained from advances in the column technologies themselves, advanced beam control mechanisms, often coupled with direct signal feedback from the perspective of the beam(s) being patterned, have enabled a range of new developments that step outside what has traditionally been thought of as "the limits of FIB". However these advancements require much more than the classic "mill a rectangle" approach.

This presentation will outline application examples developed at Fibics which we believe push the boundaries of what is typically considered achievable, through the use of "non-standard" patterning and beam control methods. Examples will be drawn from our LMIS Ga-FIB, FIB-SEM and GFIS instrument suite from the fields of large area imaging, three-dimensional analysis, circuit editing and nanofabrication, with and without gas assisted processes. It is hoped this presentation will prompt a spirited discussion on what techniques are needed but are yet to be developed.