Advances in Focused Ion Beam nanoprototyping

O. Wilhelmi, H. Mulders, P. Faber, D. Wall
FEI Company, PO Box 80066, 5600 KA Eindhoven, The Netherlands
Oliver.wilhelmi@fei.com

The number of applications to which the advantages of having a tool that can directly pattern any kind of material presents unique benefits is growing at an increasing pace. Along with the diversity of use cases grow the demands for dedicated FIB patterning strategies [1] for larger and more complex patterns and techniques for different material systems. Figure 1 shows the combination of an interdigitated nanofluidic structure milled into glass with a FIB deposited metal line as an example for process automation for accurate pattern placement. We present examples of techniques that allow the application of FIB techniques to new material systems. New material systems do not only include materials that can be milled with good control, but also new gaseous precursors for beam induced deposition.

References:

[1] O. Wilhelmi, S. Reyntjens, C. Mitterbauer, L. Roussel, D.J. Stokes, D.H.W. Hubert, Jpn. J. Appl. Phys., Vol. 47 No. 6 (2008).

Figures:

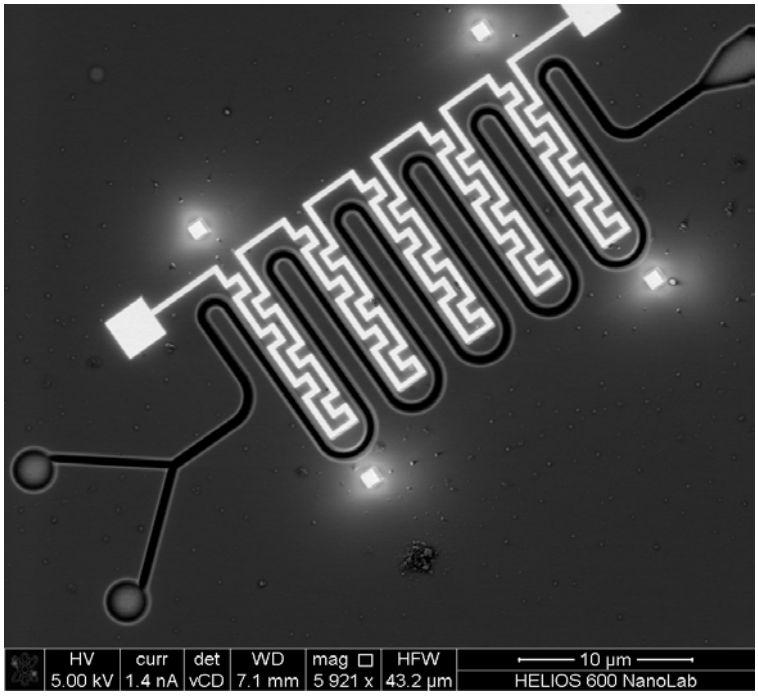

Figure 1. A nanofluidic device consisting of a FIB milled channel and a FIB deposited metal line.