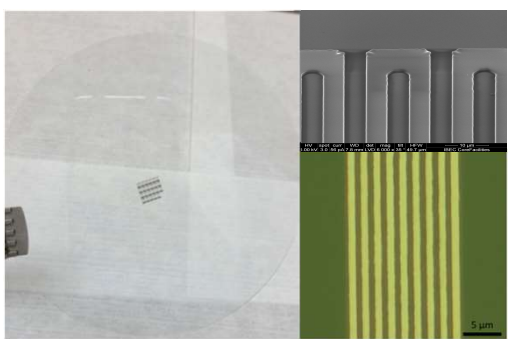
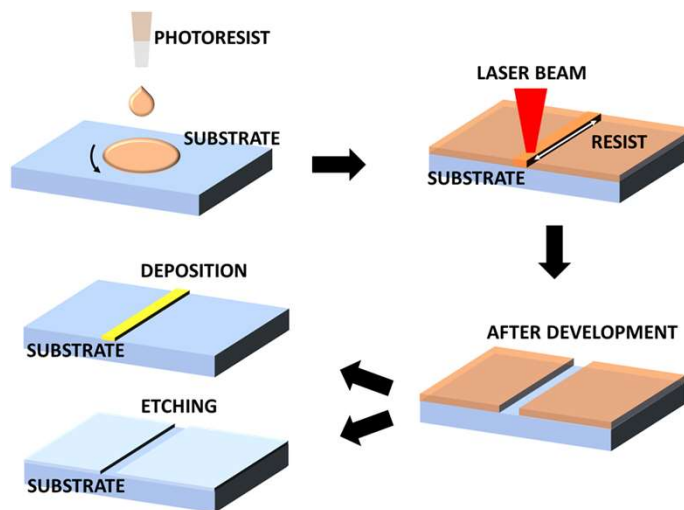


Microstructures by DWL

Direct laser lithography permits the fabrication of high-resolution microstructures in a maskless process. By this method, fast testing of preliminary experiments is possible, as well as direct fabrication for “single shot” experiments. In the MicroFabSpace, we can pattern in this way up to 4 inches substrates, including silicon wafers, glass substrates, metallized samples, etc.

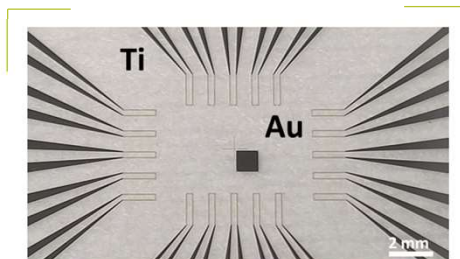
The fabrication of microstructures by DWL starts by:

spin coating a thin layer of photoresist on the working substrate. This photoresist is then exposed to a 405 nm laser source, defining a pattern. The pattern is created by a mask making software, as AutoCAD for instance, which is compatible with the laser controller software. After laser lithography development, the pattern is revealed and the exposed substrate areas can be either covered by a metal, to build up electrodes, or removed by wet etching, to create grooves on the substrate.



High resolution maskless optical lithography

Top right image shows vertical profiles of photoresist on glass and bottom right image shows a pattern of lines 1 μm wide, separated 1 μm (on 4” glass wafer, left image).



Alignment of several layers

Top image shows 2 metal layers overlapping (Cr and Au) on glass cover. Bottom images show 2 layers of negative resin overlapping on 4” Si wafer.

