

Direct 3D-patterning using mask

A shadow mask is used to produce 3D-structures in a single step, replicating the apertures of a stencil as deposits on the substrate. The small gap introduced between substrate and mask induces a temperature difference and is used to deposit selectively solely on the substrate. This small gap also enables the deposition of complex patterned structures resulting from the superposition of many patterns obtained using several precursor beams from different directions through a single mask aperture.

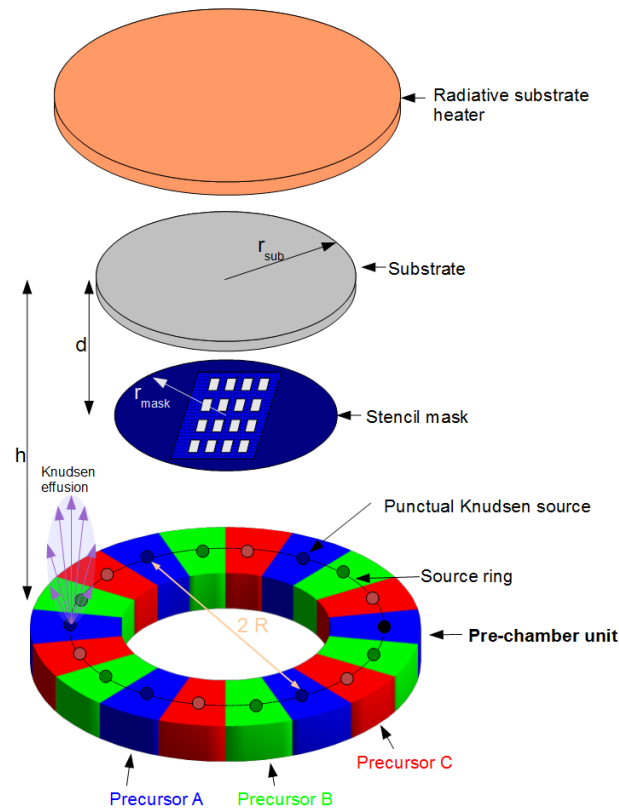


Figure - Principle of the 3D-patterning using mask.

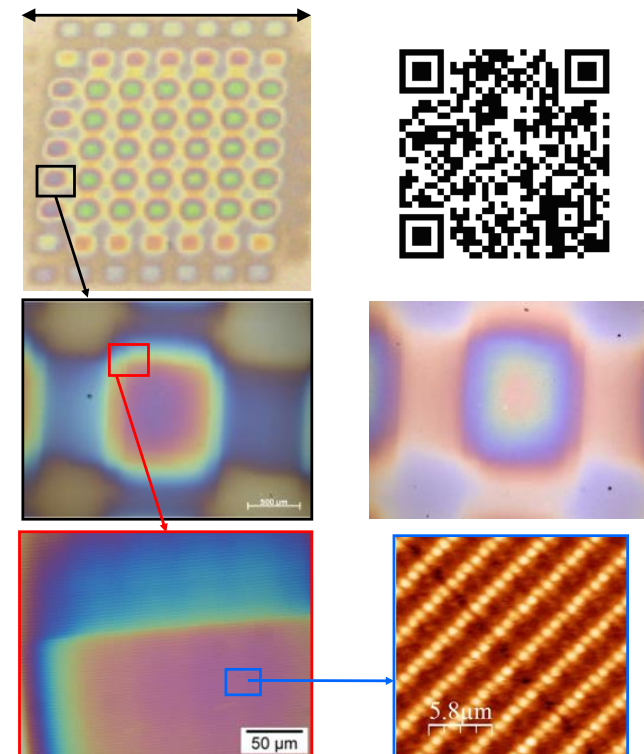
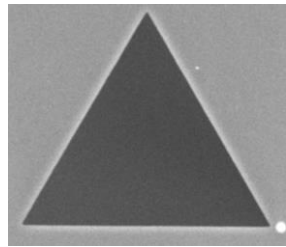
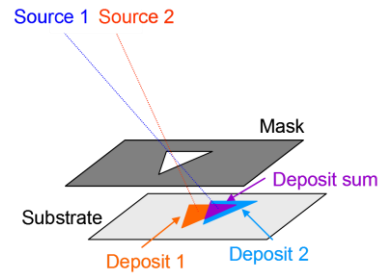
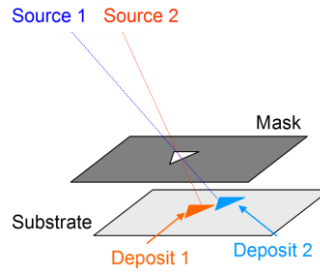


Figure - Applying the technology to anti-counterfeiting TAGS.

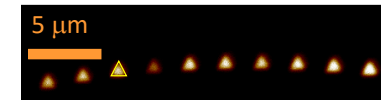
STENCIL APERTURE



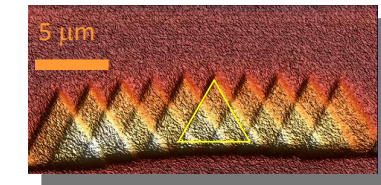
CONFIGURATION



RESULTS



AFM



AFM

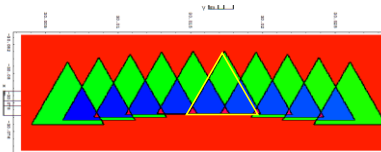


Figure - Example of TiO₂ deposits from 10 point sources through 1 and 5 μm triangular apertures in a stencil mask.