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New soft lithography method with Decal Transfer Microlithography(DTM)

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Decal Transfer Microlithography(DTM) is new soft-lithographic method for micropatterning. This technique is based on the transfer of elastomeric decal patterns via the engineered adhesion and release properties of a compliant poly(dimethylsiloxane) (PDMS) patterning tool. Patterning with Decal Transfer Microlithography(DTM) has studied using atomic force microscope. An UV exposure of the PDMS on substrate allows it to be irreversible bound. This bonding is sufficiently strong as to allow the direct transfer of the features of a patterned PDMS stamp, a decal pattern transfer, to a substrate material. The DTM method is capable of transferring micron to nanometer-sized features with high fidelity over large substrate areas. The DTM occurred independent of substrate material. Patterns in TiO_2 thin films can be transferred to the underlying substrates either by selective etching or by selective deposition.