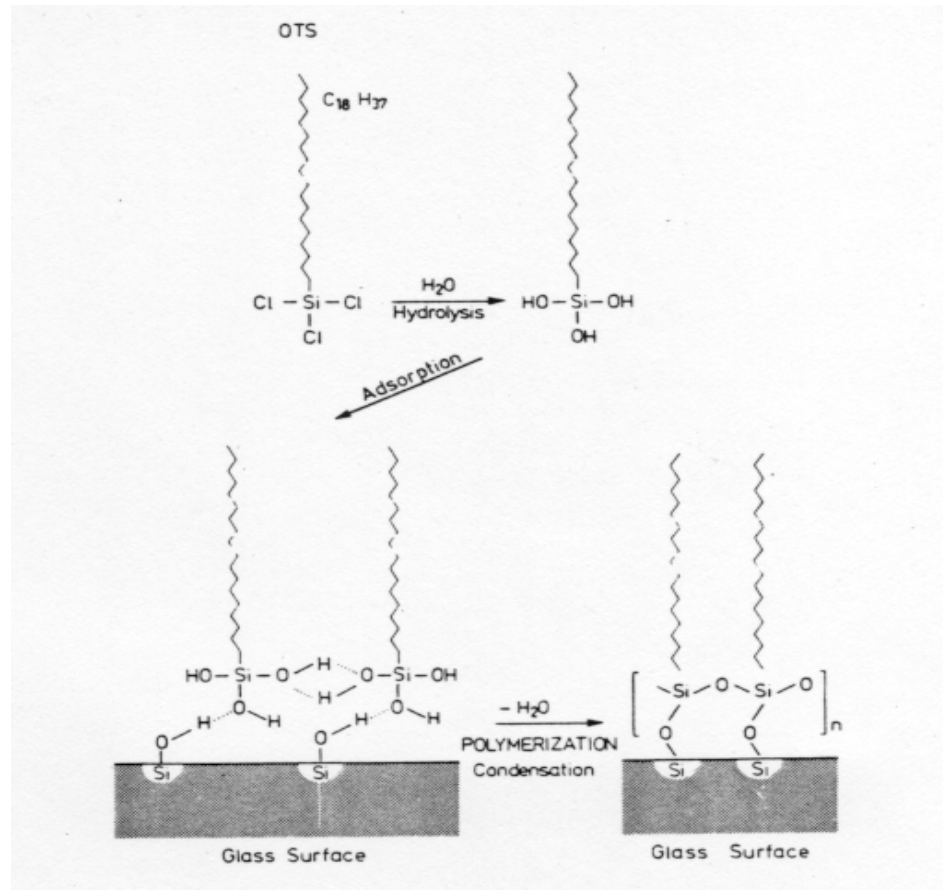


Self-Assembled Monolayers and Soft Lithography

Self-Assembly of Alkyl Silanes

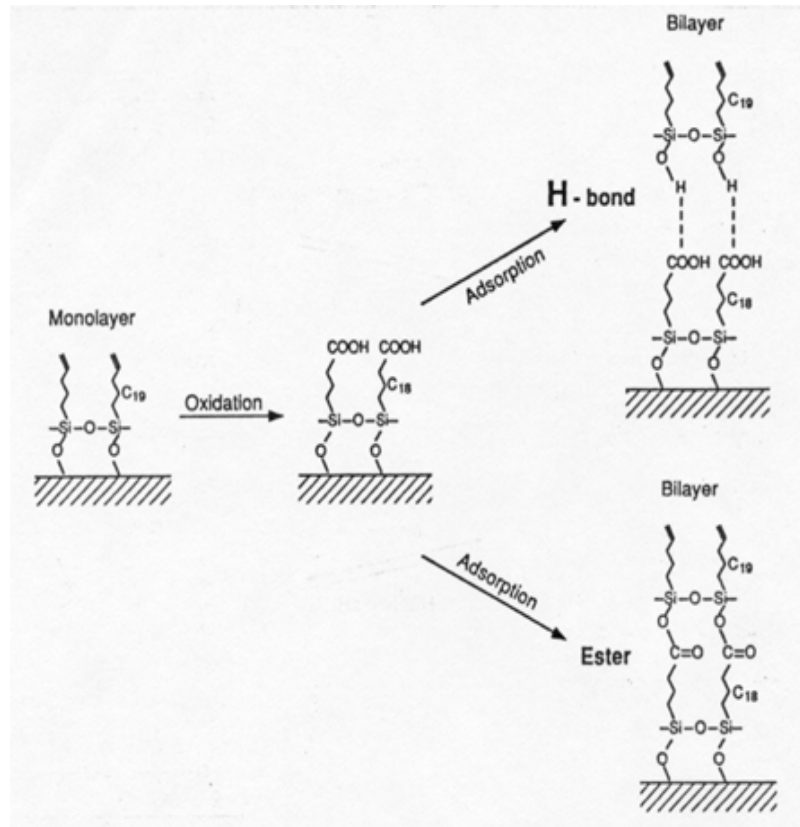
Sagiv



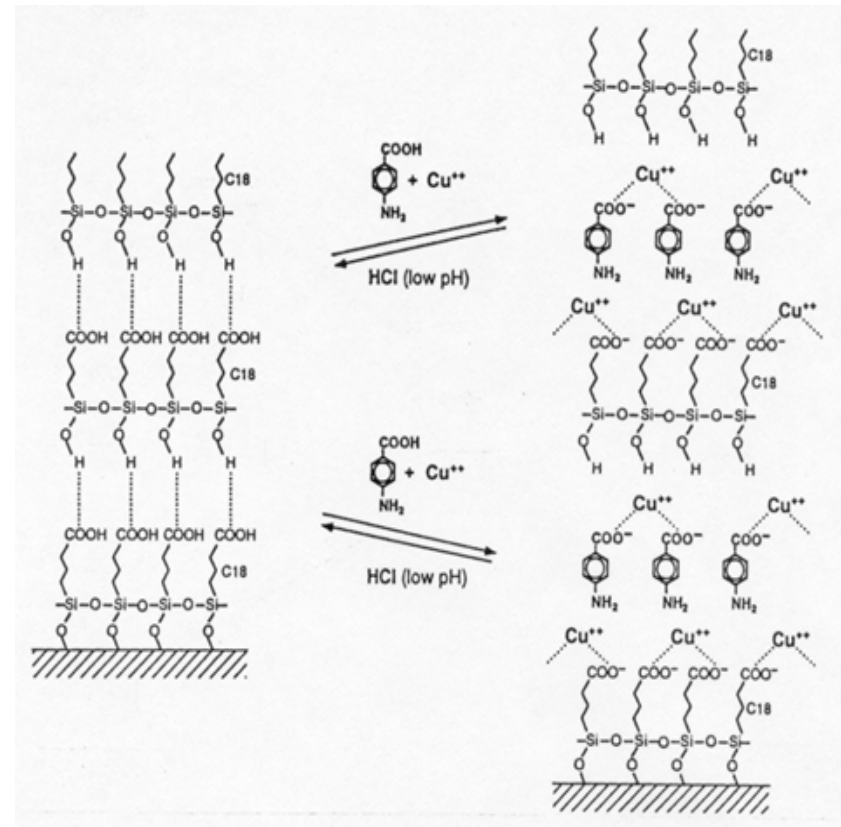
1st generation

Self-Assembly of Alkyl Silanes

Sagiv

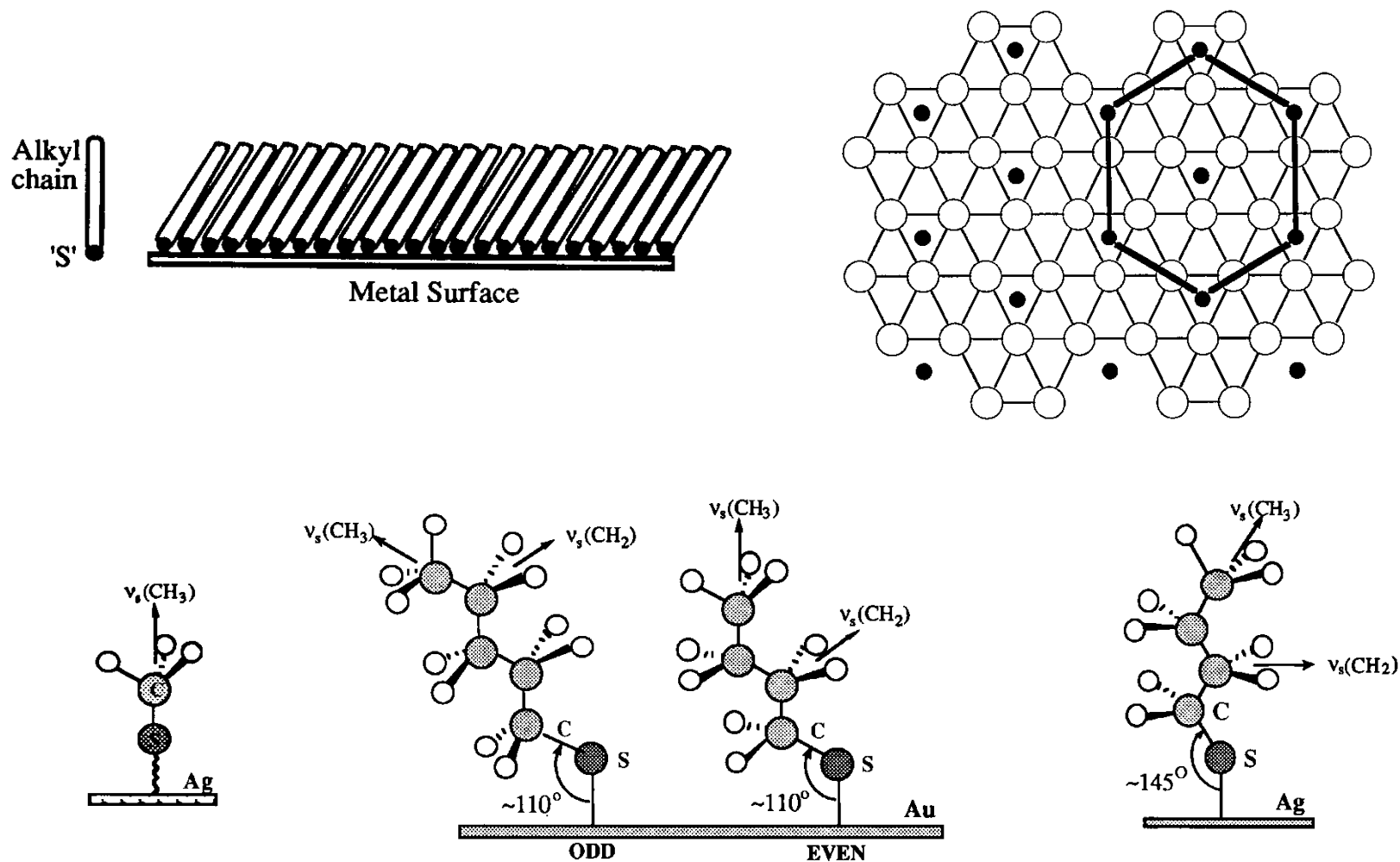


2nd generation



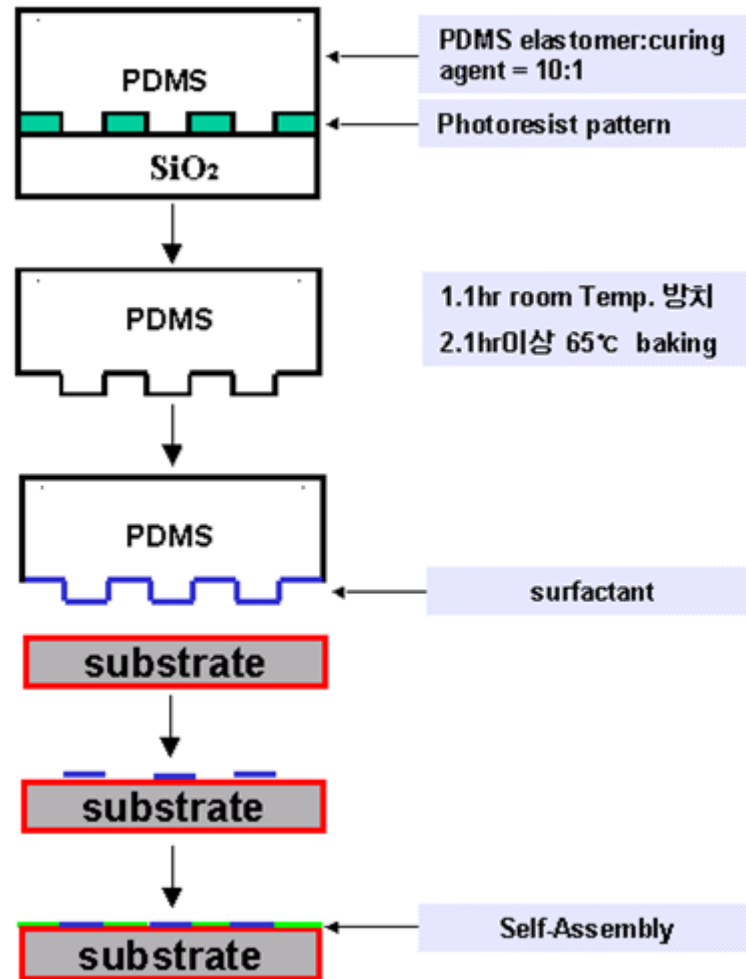
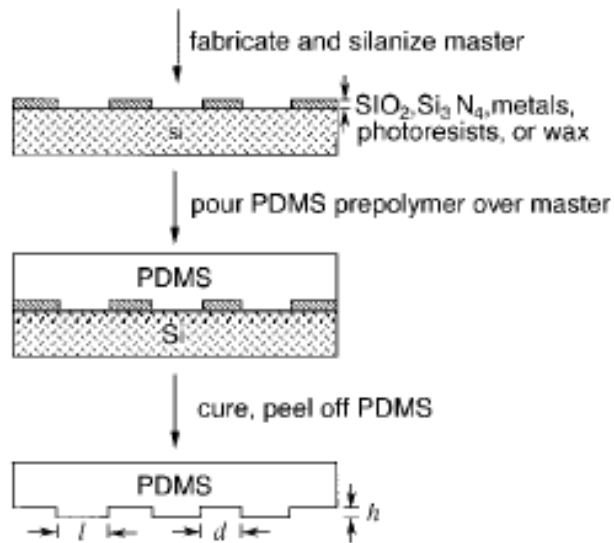
3rd generation

Self-Assembly of Alkyl Thiols



Ulman, Whitesides

Micro-Contact Printing (μ CP)



Soft Lithography



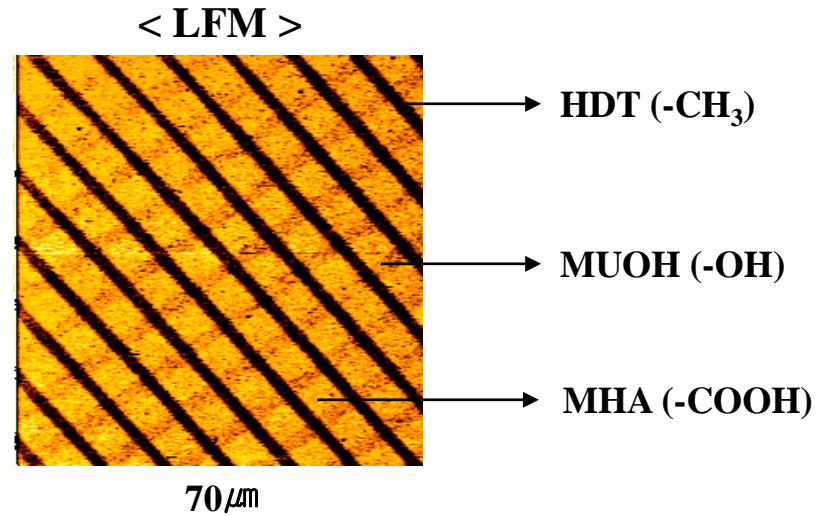
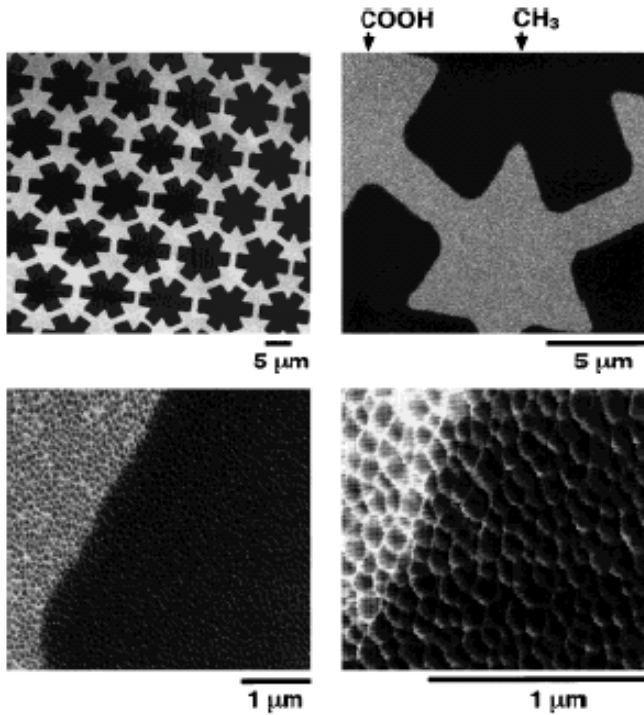
Y. Xia



G. M. Whitesides

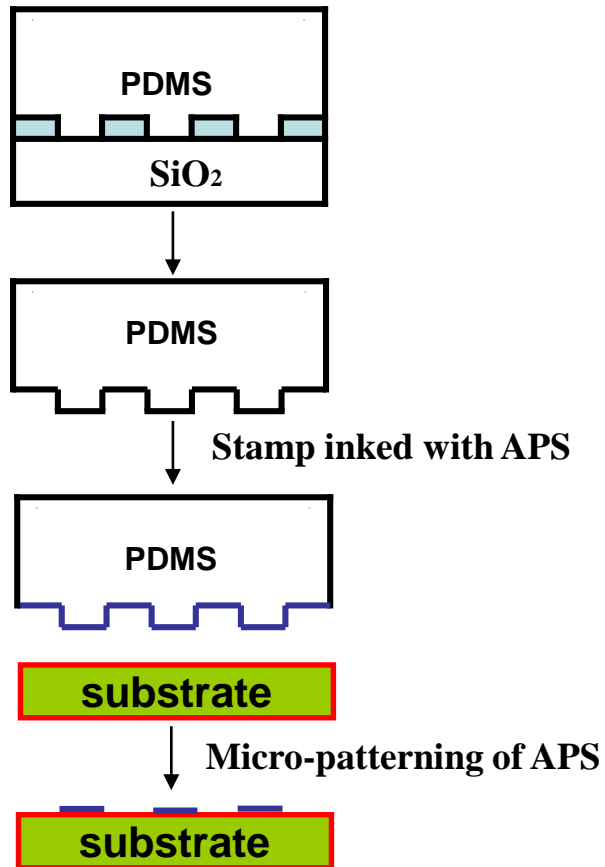
Xia & Whitesides, *Angew. Chem. Int. Ed.*, 37, 550 (1998).

Microcontact Printing (μ CP) on Gold

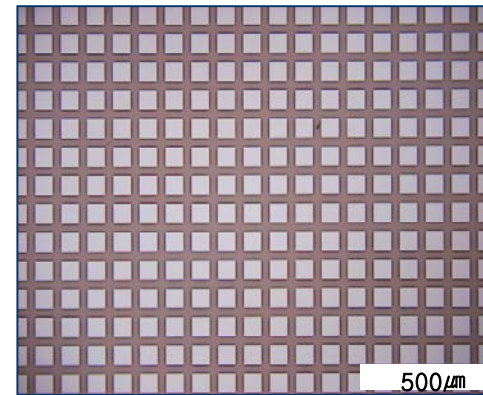


Microcontact Printing (μ CP) on Glass

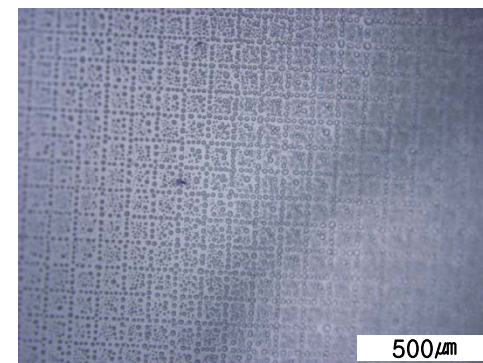
APS : 3-Aminopropyltriethoxysilane



< PDMS stamp >

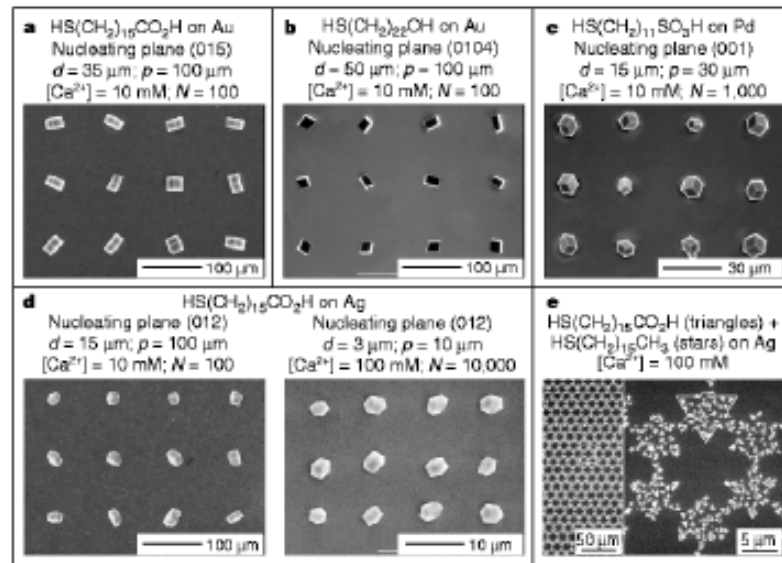
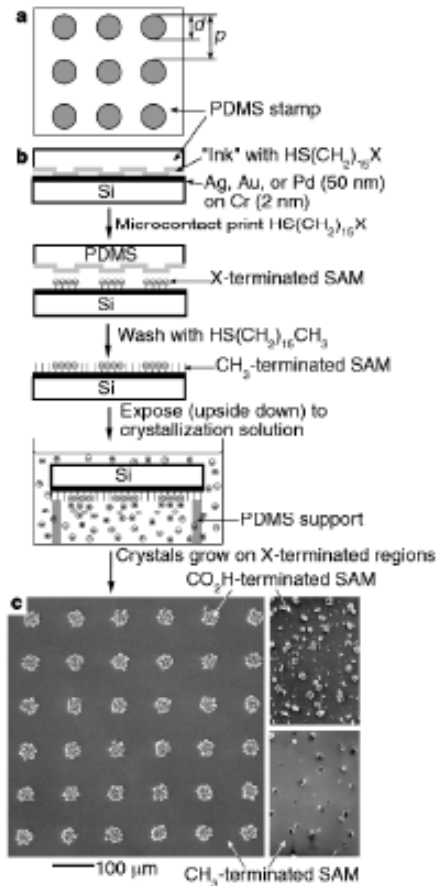


< Condensation figure >



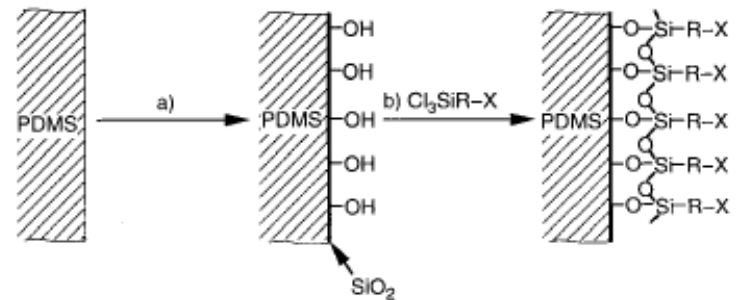
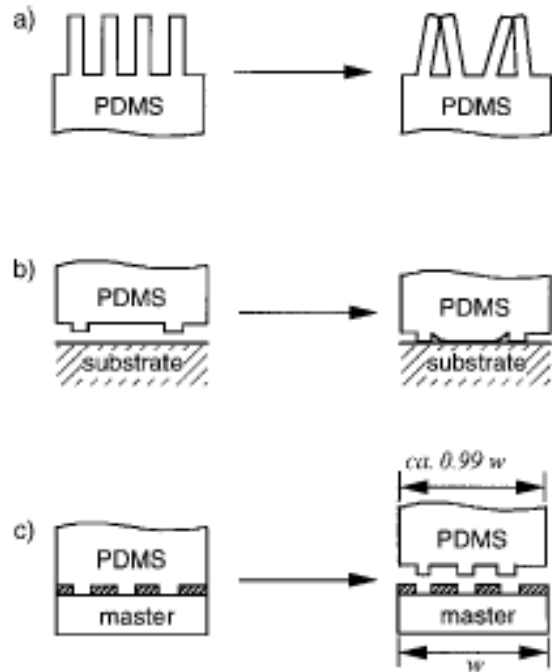
Self-assembled monolayer (SAM) and μ CP

□ Crystal growth

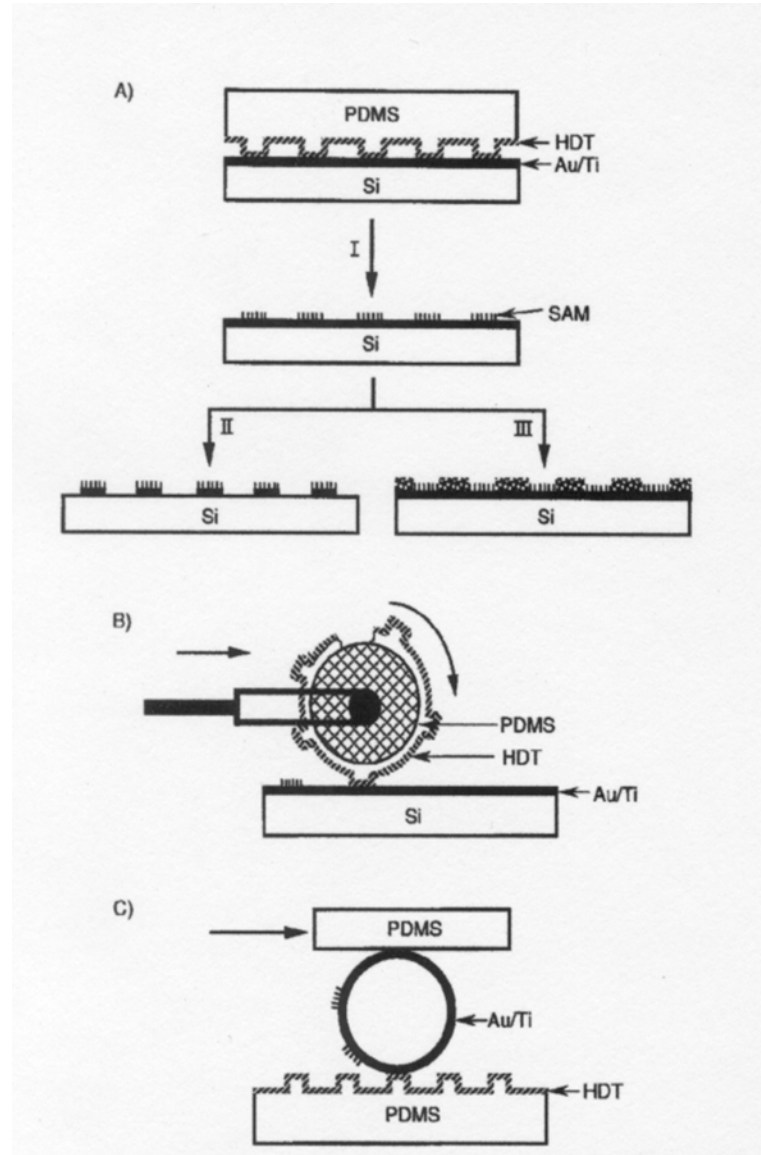


Whitesides et al., *Nature*, **398**, 495 (1999)

Regarding PDMA Stamps



μ CP : Variation



μ CP : Evolution

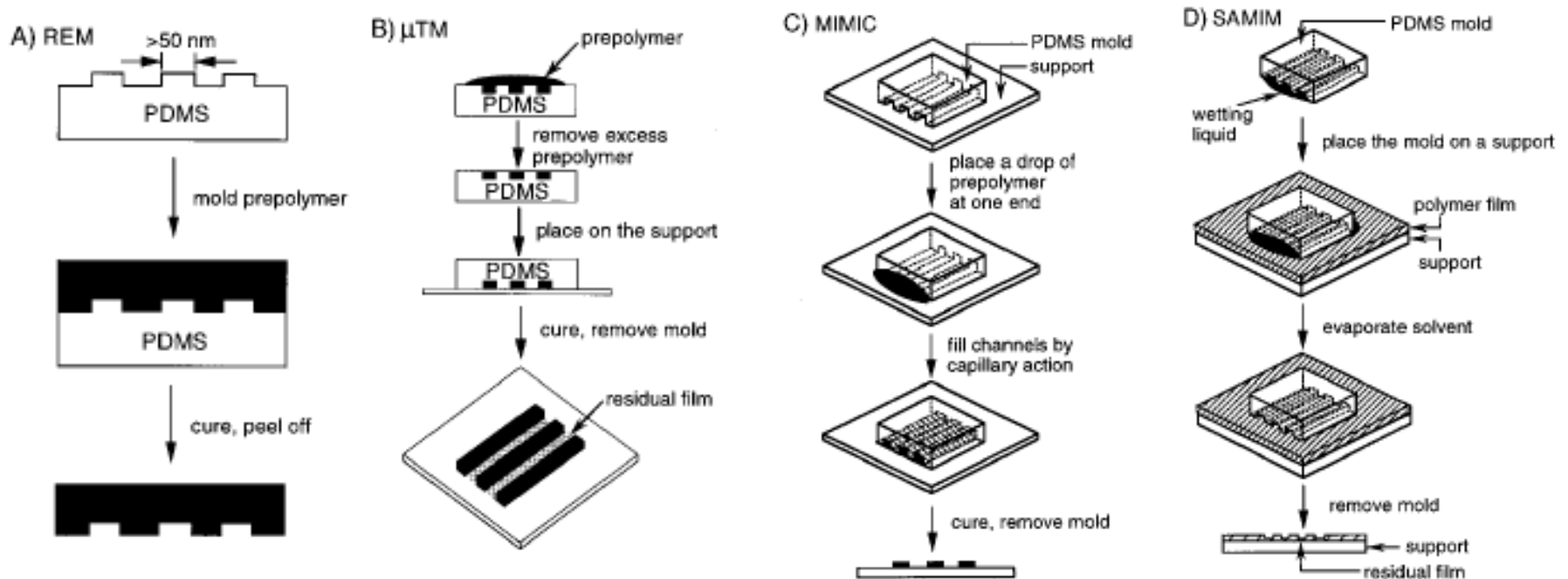
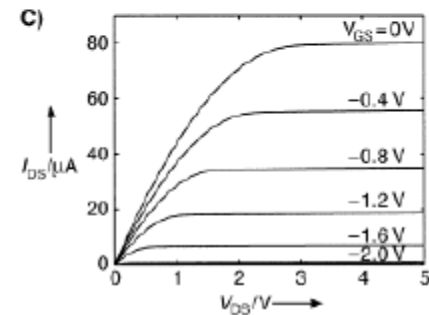
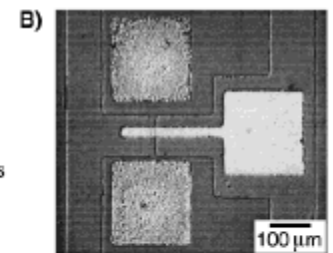
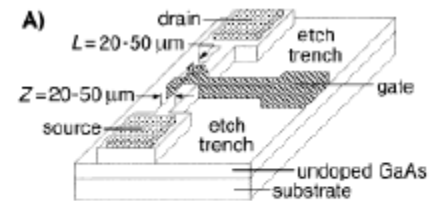
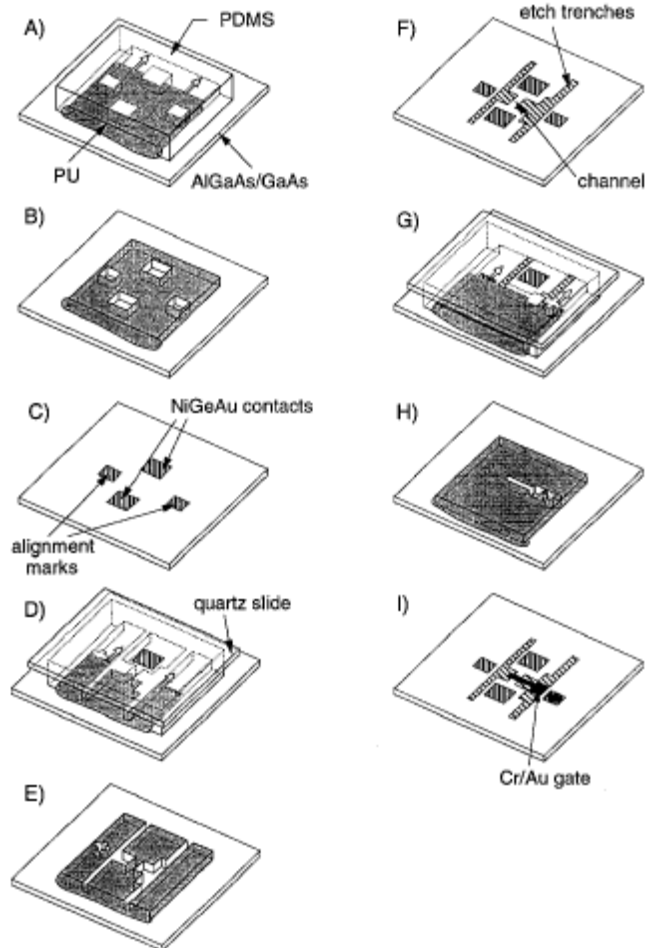


Figure 17. Schematic illustration of procedures for A) replica molding, B) microtransfer molding, C) micromolding in capillaries, and D) solvent-assisted micromolding.

μ CP : Electronics



μ CP : Evolution to 3D

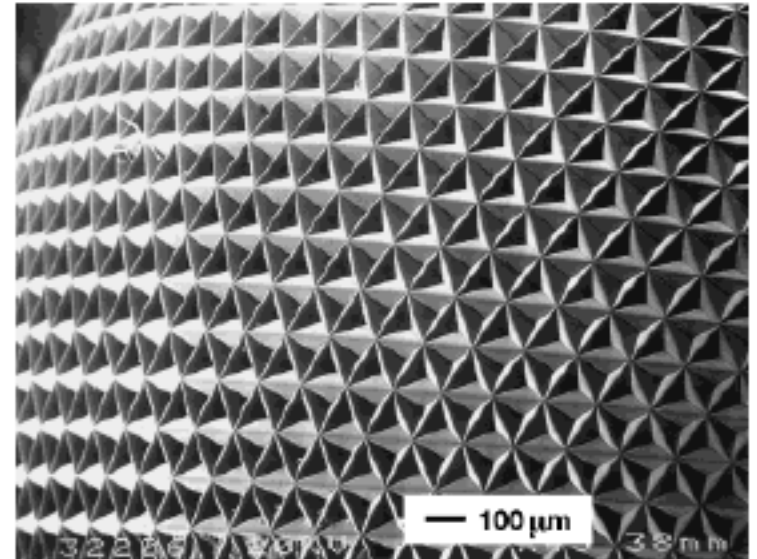
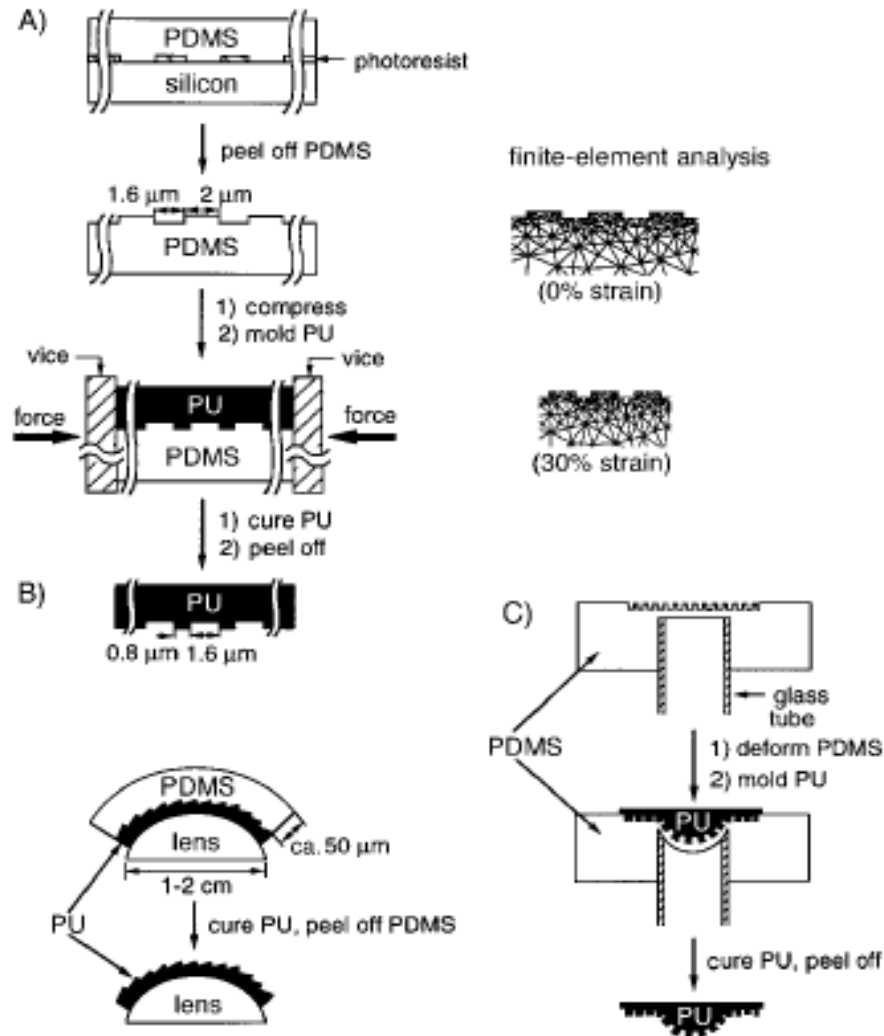


Figure 21. Schematic illustration of procedures for replica molding against elastomeric PDMS molds under A) mechanical compression, B) bending, and C) stretching.^[35] The reconfigured surfaces in PDMS are replicated with a UV-curable prepolymer of PU.