

Supplementary Material (ESI) for Soft Matter  
This journal is © The Royal Society of Chemistry 2007

Supplemental Section for

**Patterning micron-sized features in a cross-linked poly(acrylic acid) film by a wet  
etching process**

Adam Winkleman, Raquel Perez-Castillejos, Michal Lahav, Max Narovlyansky, Leonard  
N. J. Rodriguez, and George M. Whitesides\*

\*corresponding author

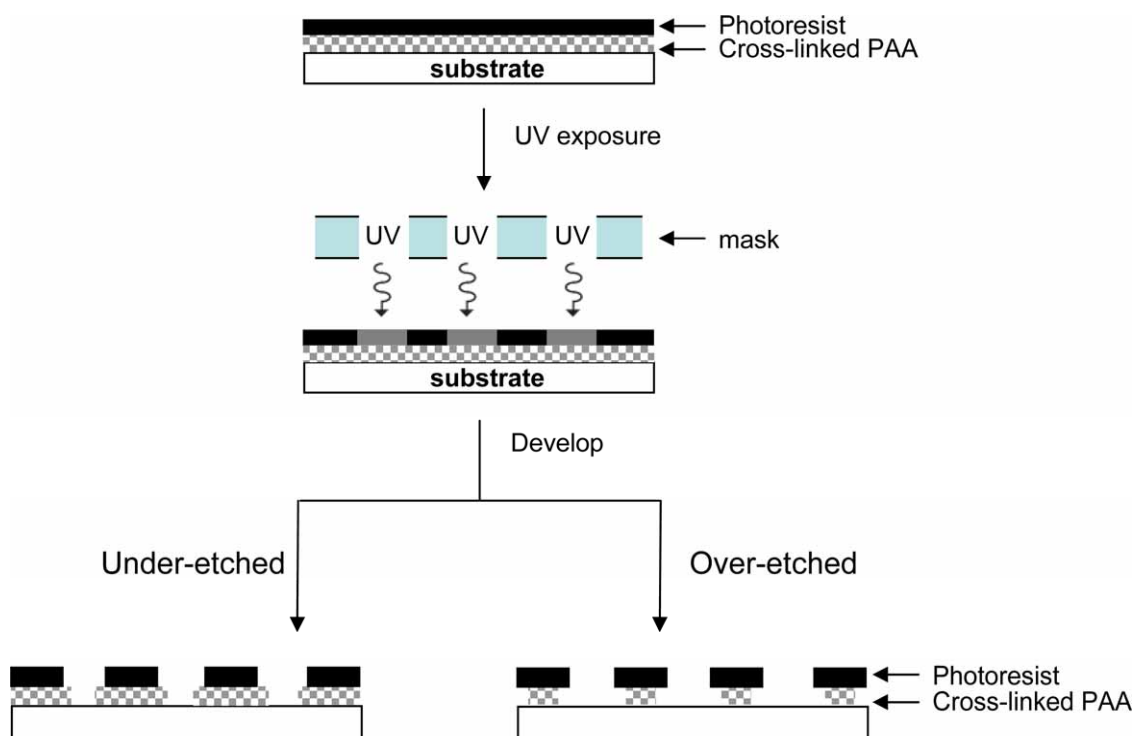


Figure S1:

A schematic representation illustrating a CCL-PAA film that has been either under-etched or over-etched.

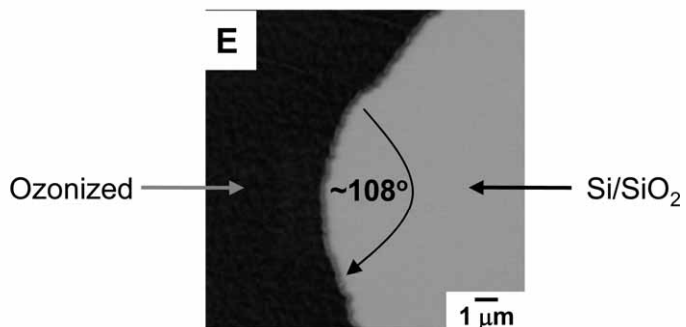
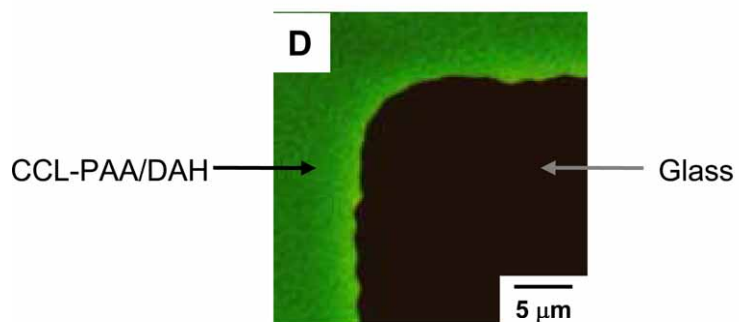
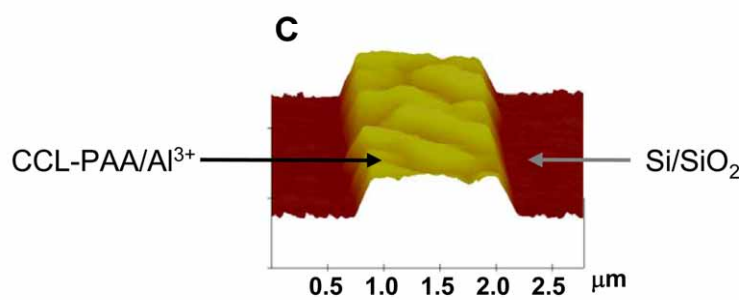
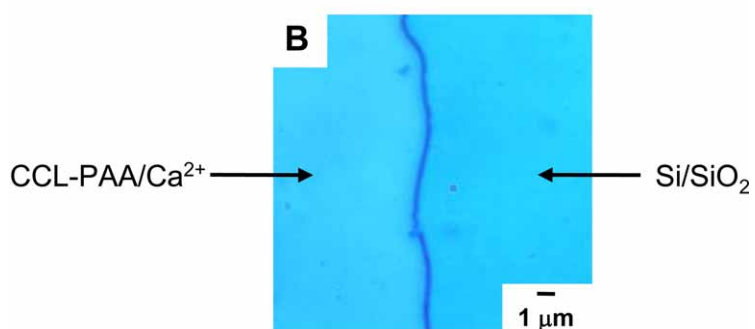
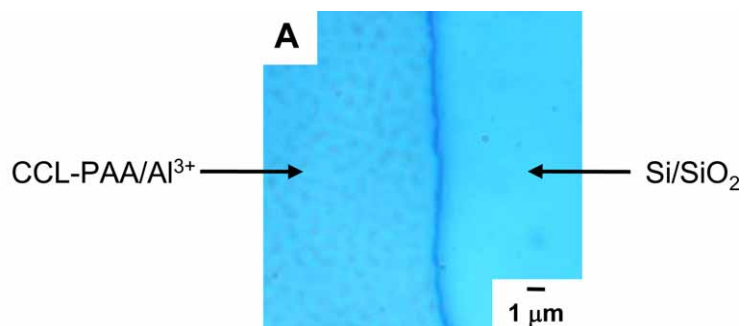


Figure S2:

A series of optical, AFM, and SEM images that illustrate at high resolution the roughness of the edges of the patterned CCL-PAA and low-k dielectric substrate. A-B) Edges from patterned CCL-PAA/ $\text{Al}^{3+}$  and CCL-PAA/ $\text{Ca}^{2+}$  films that used a photoplotting transparency mask similar to those of Figure 2B and 2C, respectively. C) An AFM image of the edge from a set of 1- $\mu\text{m}$  lines that used a chrome photomask and a CCL-PAA/ $\text{Al}^{3+}$  film (a high resolution image of Figure 2D). D) A fluorescent image of the edge roughness after cation exchange with DAH. E) Edge roughness of an aluminum oxide film after ozonation; the processing appears not to alter the edge roughness of the structure.

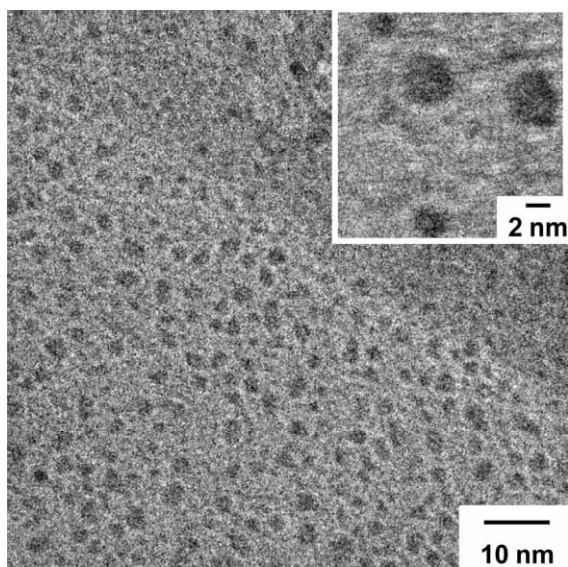


Figure S3:

A TEM image showing Ag nanoparticles embedded in a CCL-PAA/Ag<sup>+</sup> matrix. The inset shows a typical particle with a diameter of ~ 3 nm.