Supplementary Information

One-step nanoscale assembly of complex structures via harnessing of an elastic instability

Ying Zhang,[†,‡] Elisabetta A. Matsumoto,[†,§] Anna Peter,[†,‡] Pei-Chun Lin,[†,‡¶] Randall D. Kamien,[†,§,] & Shu Yang[†,‡,*]*

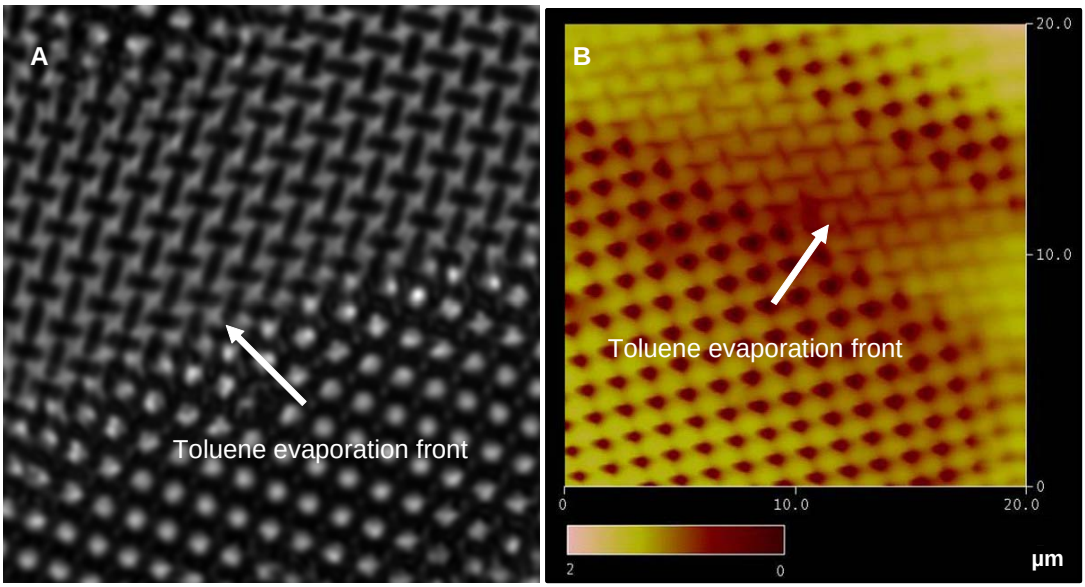

Figure S1. In-situ images of partially restored perforated PDMS membrane during toluene evaporation. A) Optical image and B) AFM image. The area with circular dots is the completely restored region after the toluene has evaporated, and the diamond plate area is the deformed pattern where the PDMS membrane is swollen by toluene.

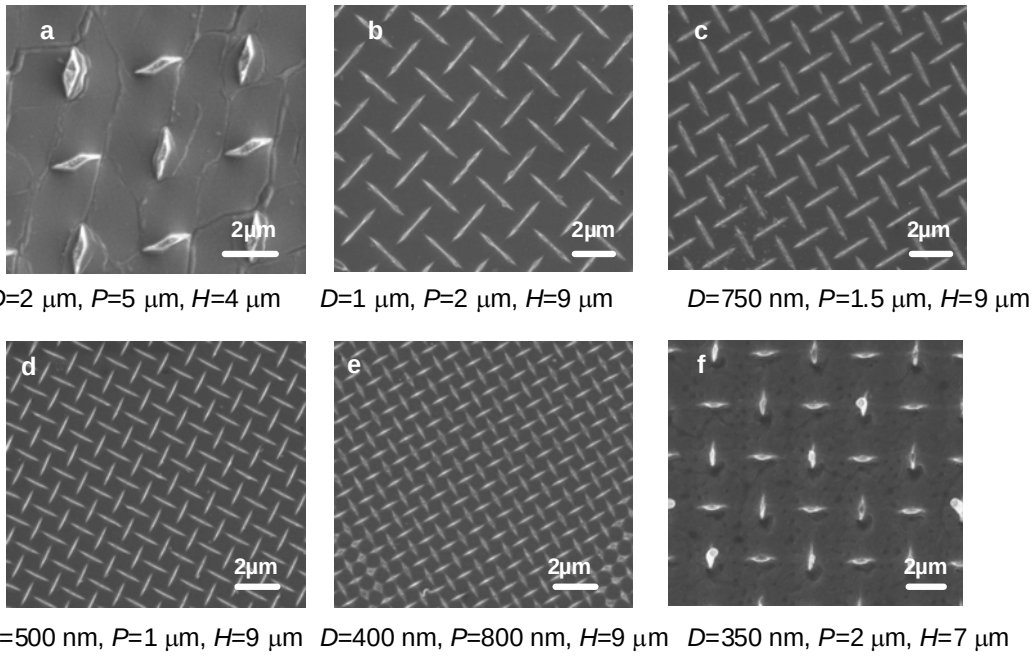

Figure S2. SEM images of Fe_3O_4 nanoparticle assemblies from different PDMS membranes with square lattices. a) *D*=2 μm, *P*=5 μm, and *H*=4 μm. b) *D*=1 μm, *P*=2 μm, and *H*=9 μm. c) *D*=750nm, *P*=1.5 μm, and *H*=9 μm. d) *D*=500nm, *P*=1μm, and *H*=9 μm. e) *D*=400nm, *P*=800 nm, and *H*=9 μm. f) *D*=350nm, *P*=2 μm, and *H*=7 μm.

Video (.mov) of restoration of the deformed PDMS pattern during evaporation of toluene along with Figure 1. The movie is captured by an ORCA 285 Monochrome CCD camera attached to the Olympus BX61 optical microscope. Original PDMS membrane has hole pattern size of D=1 μm, P=2 μm, and H=9 μm.