

SUPPORTING INFORMATION

Supported pyrolysis for lithographically defined 3D carbon microstructures

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A 3D woodpile structure was obtained via multibeam holographic lithography. (Figure S1a) The photoresist was prepared by mixing a SU-8 (Miller-Stephenson Chemical) and a photoinitiator (Irgacure 261, Ciba Specialty Chemicals, 2wt%) in a gamma-butyrolactone (Sigma-Aldrich). A photoresist film with a thickness of 4–6 μm was obtained by spin casting on a quartz substrate. The film was soft-baked at 95 $^{\circ}\text{C}$ for 10 min before being exposed to the interference pattern. After the exposure and subsequent baking at 65 $^{\circ}\text{C}$ for 20 min, the sample was developed with propylene glycol methyl ether acetate and rinsed with iso-propanol. For pyrolysis, SU-8 woodpile structures heat-treated at 300 $^{\circ}\text{C}$ and 900 $^{\circ}\text{C}$ in an inert Ar atmosphere (gas flow rate of 0.2 L/min), respectively.

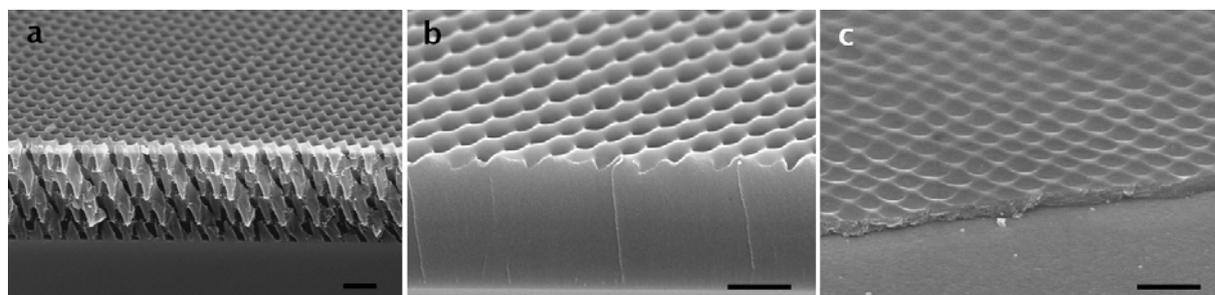


Fig. S1 (a) SEM images of the 3D woodpile structure. SEM images of the 3D woodpile structure at (b) 300 $^{\circ}\text{C}$ and (c) 900 $^{\circ}\text{C}$. (scale bar: 2 μm)

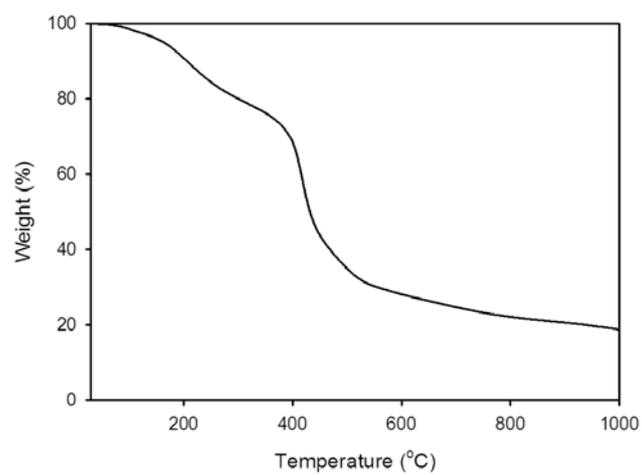


Fig. S2 Thermogravimetric analysis of the SU-8 structures in Ar atmosphere.