

**Electronic Supplementary Information  
for**

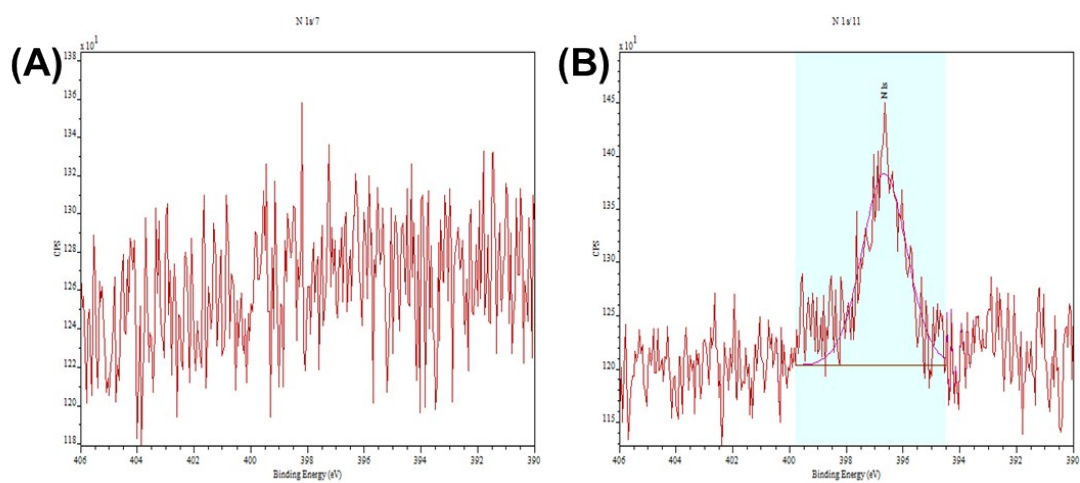
**Healing Surface Roughness of Lithographic Nanopatterns through Sub-10 nm Aqueous-soluble Polymeric  
Particles with Excellent Dry Etch Durability**

Zhen Jiang,<sup>a,d</sup> Han-Hao Cheng,<sup>c</sup> Idriss Blakey<sup>a,b</sup> and Andrew K. Whittaker<sup>a,d</sup>

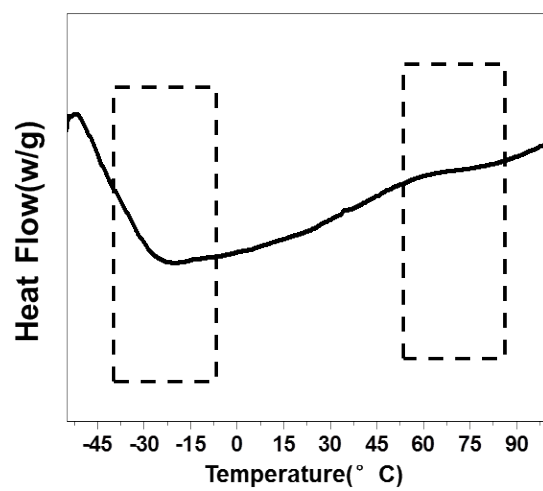
<sup>a</sup>Australian Institute for Bioengineering and Nanotechnology, <sup>b</sup>Centre for Advanced Imaging, <sup>c</sup>Australian National Fabrication Facility Queensland Node, <sup>d</sup>ARC Centre of Excellence in Convergent Bio-Nano Science and Technology, The University of Queensland, St Lucia, 4072, Australia.

\*Email: a.whittaker@uq.edu.au

Supplementary figures



**Figure S1.** The high-resolution N1s XPS spectra of the model negatively charged surface before (A) and after (B) deposition of the micelles.



**Figure S2.** DSC traces for BCP-A1. Two distinct transitions at around -27°C and 53°C are observed.

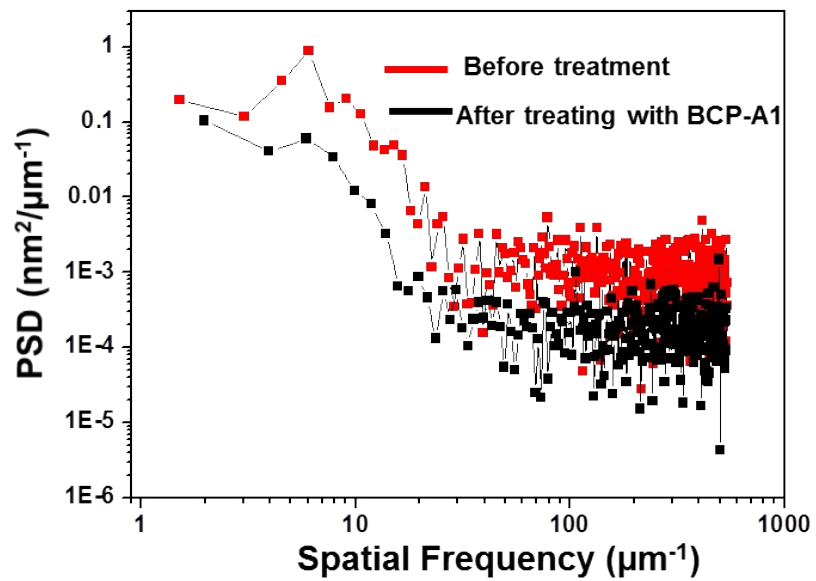
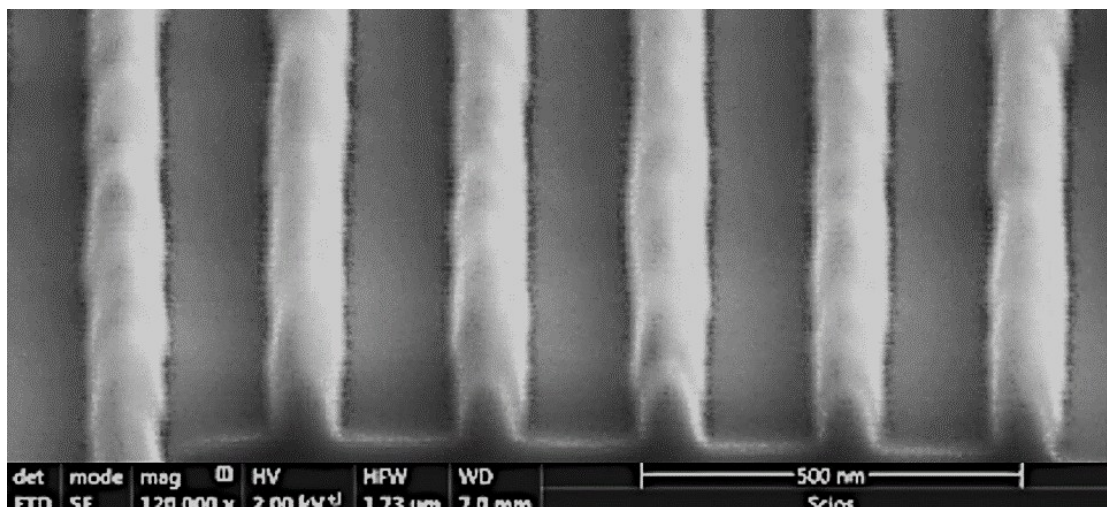


Figure S3. Power spectral density (PSD) functions for the patterned TER60 resist and those further treated with BCP-A1.



**Figure S4.** Cross-sectional SEM image after Si etching using TER EBL patterns template.

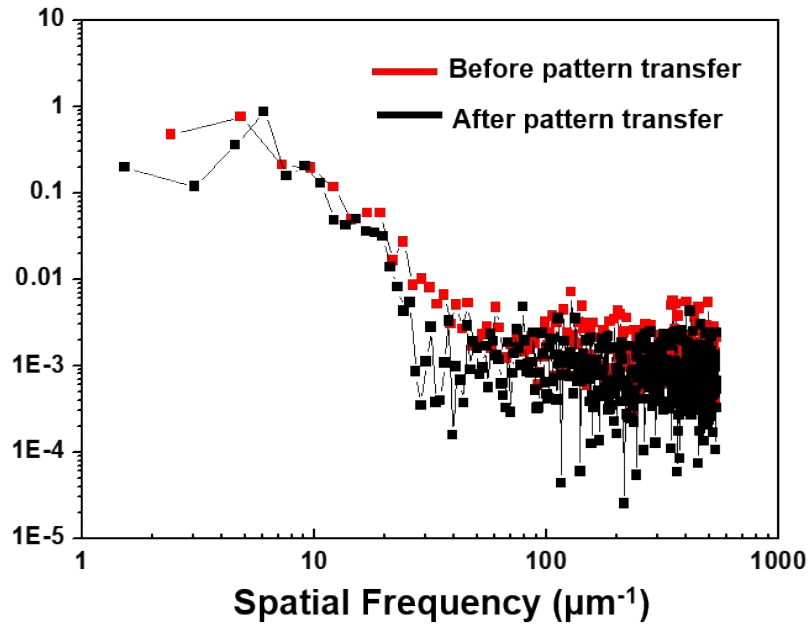


Figure S5. Power spectral density (PSD) functions for the patterned TER60 resist before and after pattern transfer.