

**Supporting Information:**

**Tuning Optical Properties of Gold Nanorods in Polymer Films through Thermal Reshaping**

Yu Liu, Eric N. Mills and Russell J. Composto\*

Department of Materials Science and Engineering, and Laboratory for Research on the Structure of Matter, University of Pennsylvania, Pennsylvania, PA 19104, USA. Fax: 1 215 573 2128; Tel: 1 215 898 4451; E-mail: [composto@seas.upenn.edu](mailto:composto@seas.upenn.edu)

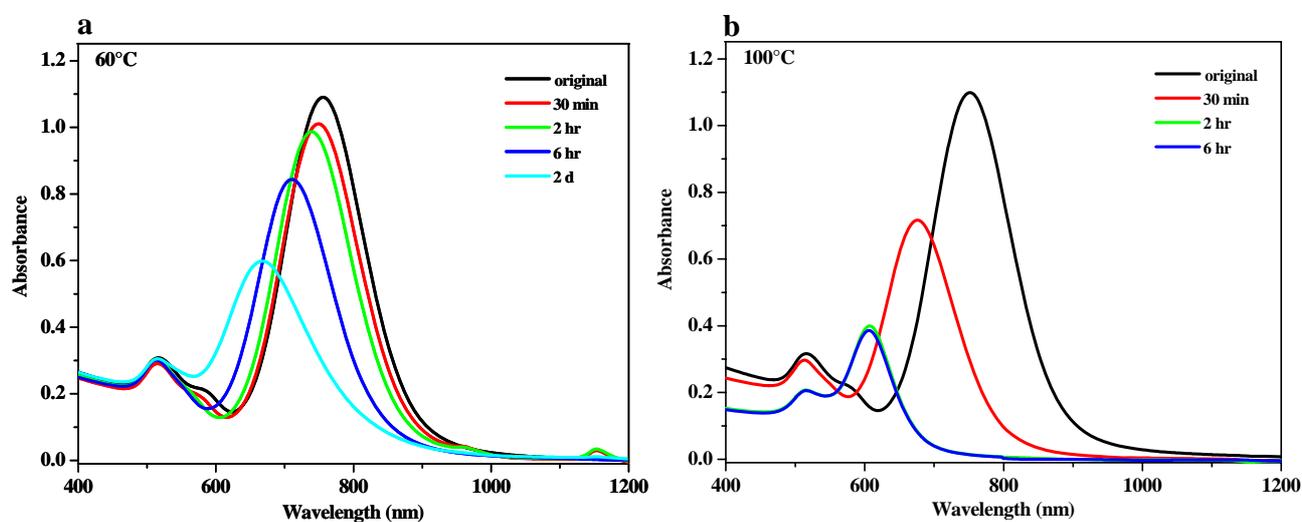


Fig. S1 UV-vis absorption spectra of PEG-NRs in water after annealing at (a) 60 °C and (b) 100 °C. Compared to PEG-NRs in PMMA (Fig 2a-b), PEG-NRs in water undergo a much stronger blue shift at both 60 °C and 100 °C.

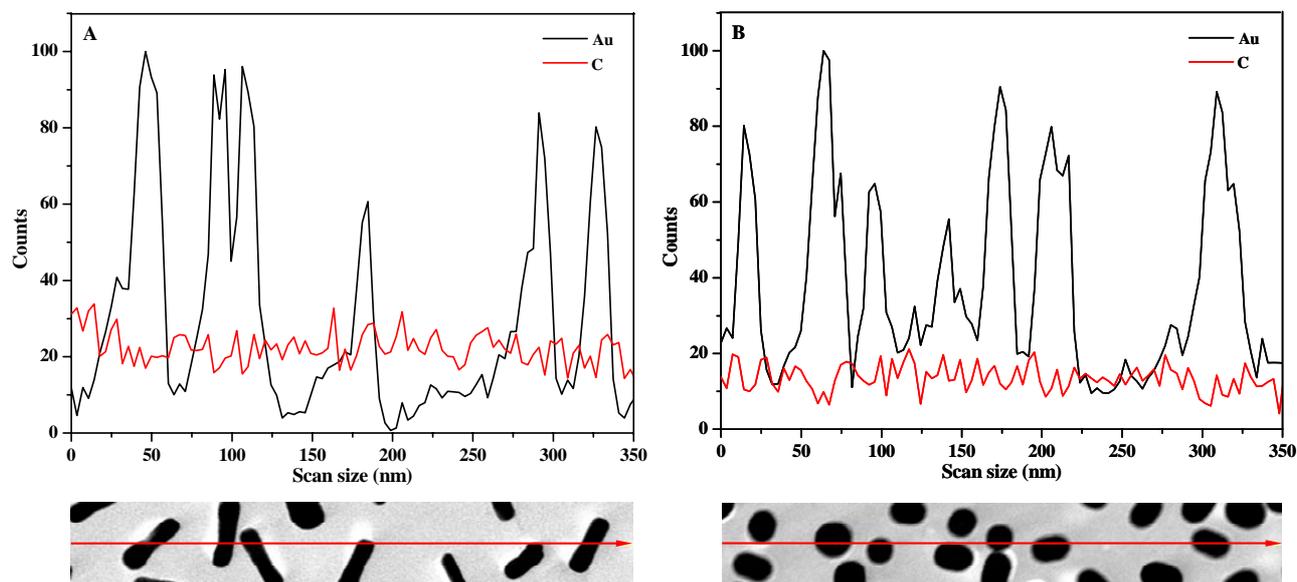


Fig. S2 EDX line scan analysis of (A) unannealed PMMA:NR film and (B) a PMMA:NR film annealed at 200 °C for 8 days. The carbon signal (red) reflects the concentration of PMMA and serves as an internal reference for the gold signal (black). The line scan across the TEM image corresponds with the EDX signal above. Thus, the gold signal is high when the electron beam is rastered across the NR. Compared to the original film, the gold concentration is relatively higher in the matrix at 200 °C, indicating that gold has diffused into the matrix.