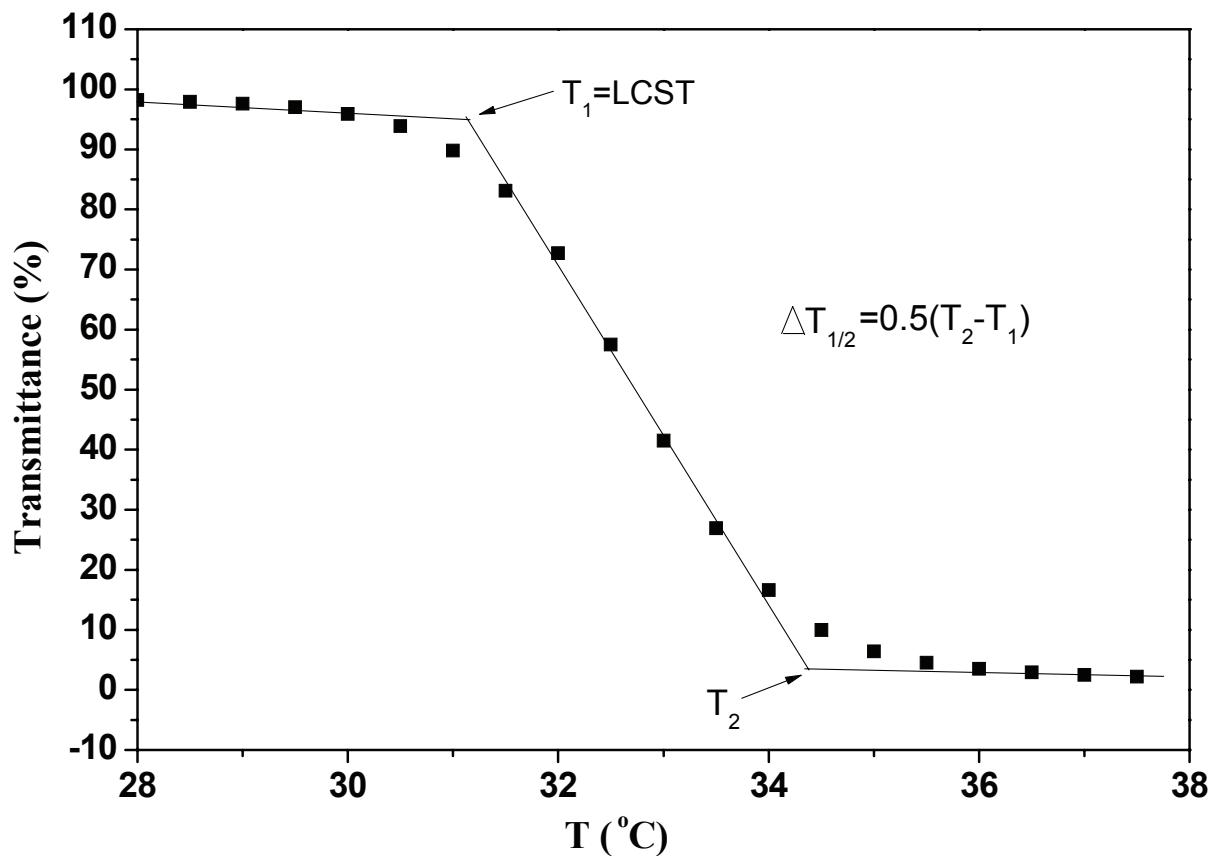


## ESI

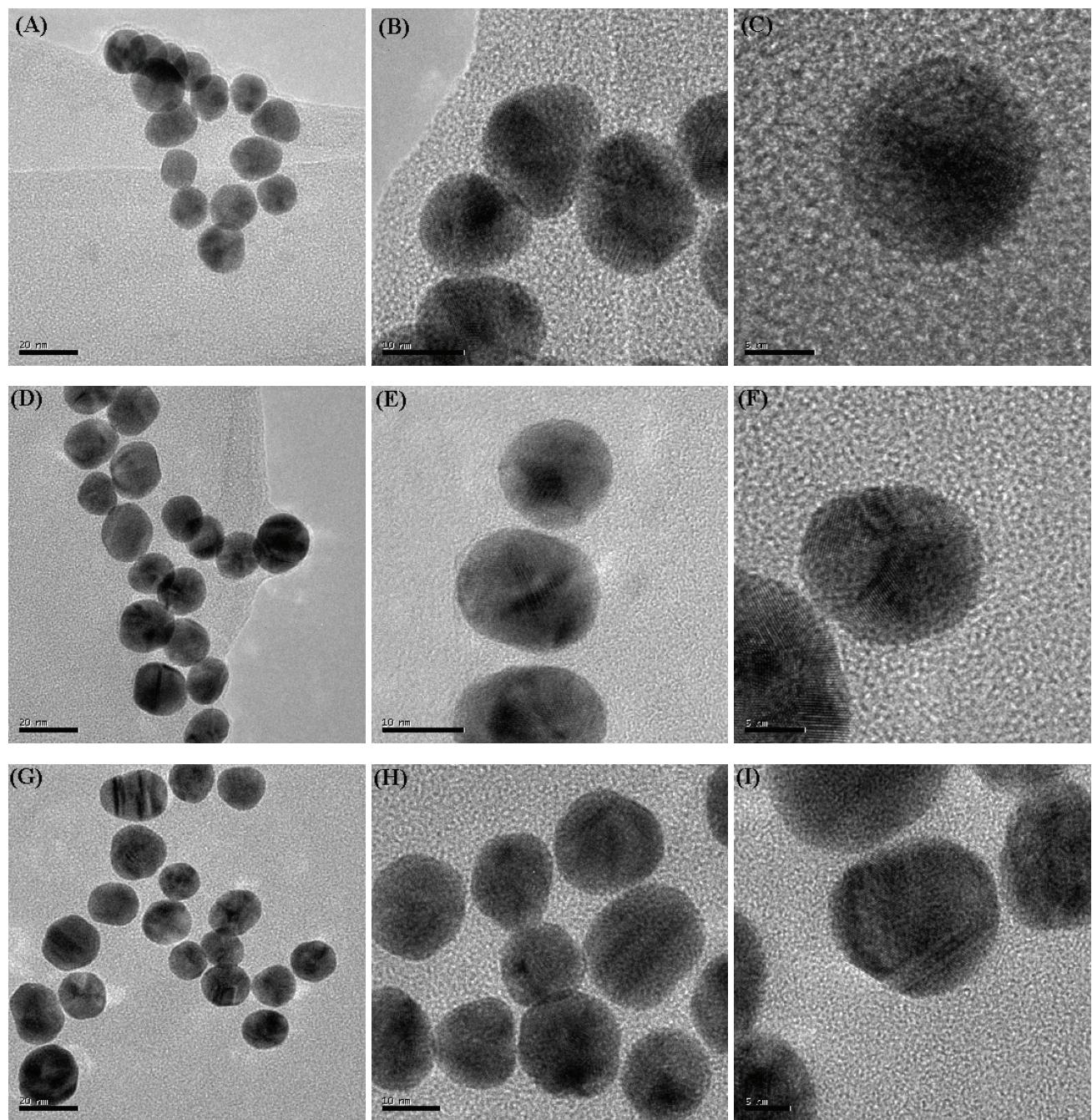
# **Thermoresponsive gold nanoparticles with adjustable lower critical solution temperature as colorimetric sensors to temperature, pH and salt concentration**

Xun-Yong Liu, Fa Cheng, Yi Liu, Wen-Gang Li Yu Chen\*, Hong Pan and Hua-Ji Liu\*

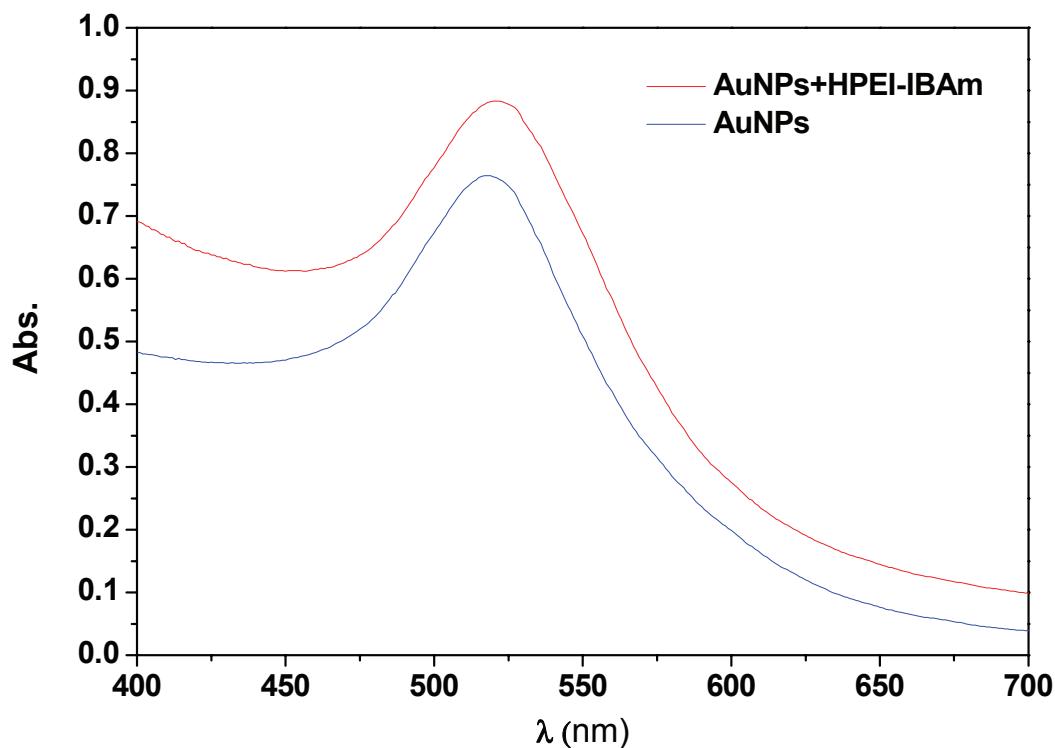
Department of Chemistry, School of Sciences, Tianjin University, 300072 Tianjin, People's Republic of China. E-mail: [chenyu@tju.edu.cn](mailto:chenyu@tju.edu.cn); liuhuaji@tju.edu.cn



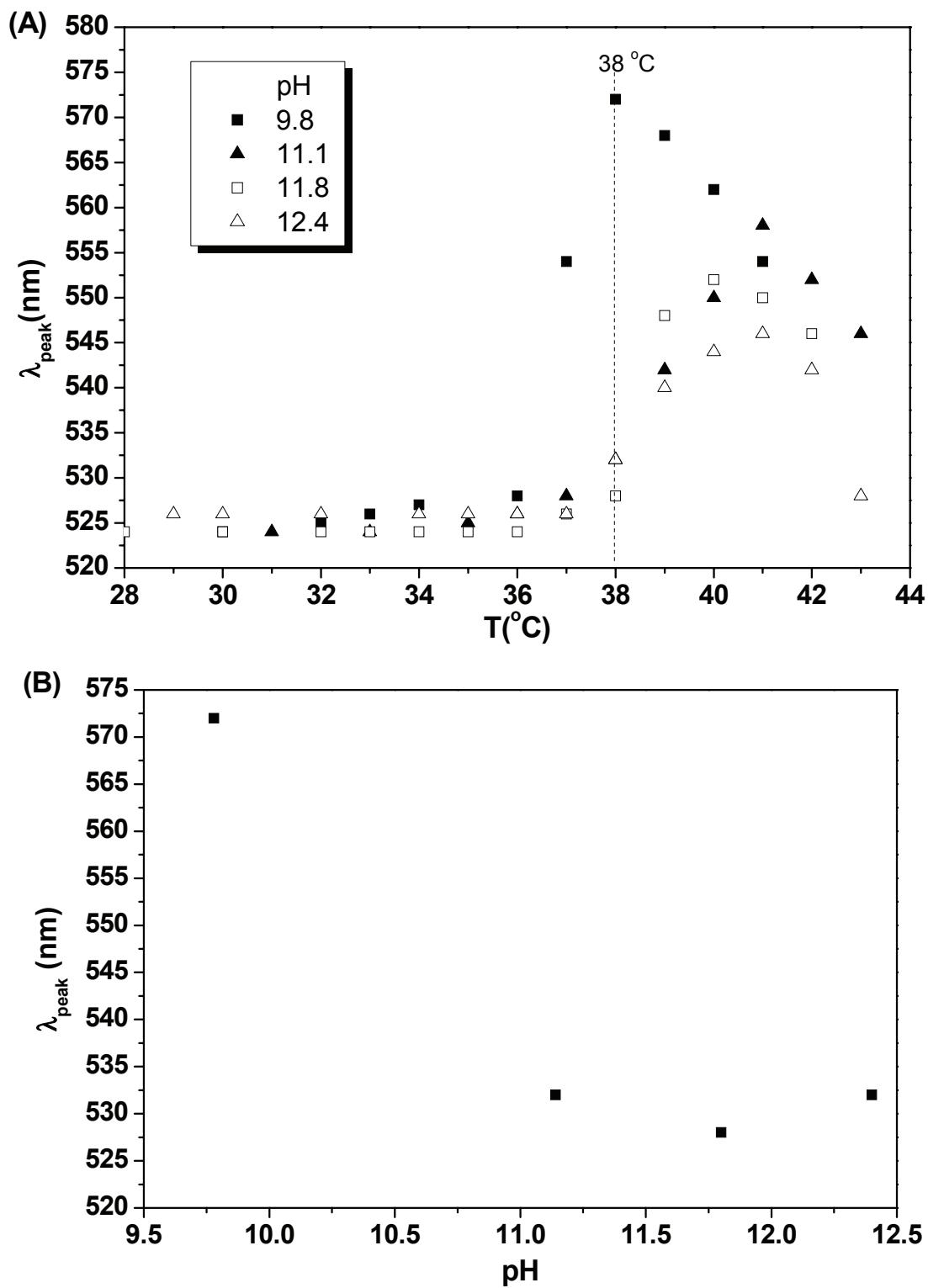
**Fig. S1** Typical curve of transmittance versus temperature and information of LCST and sharpness of transition therefrom



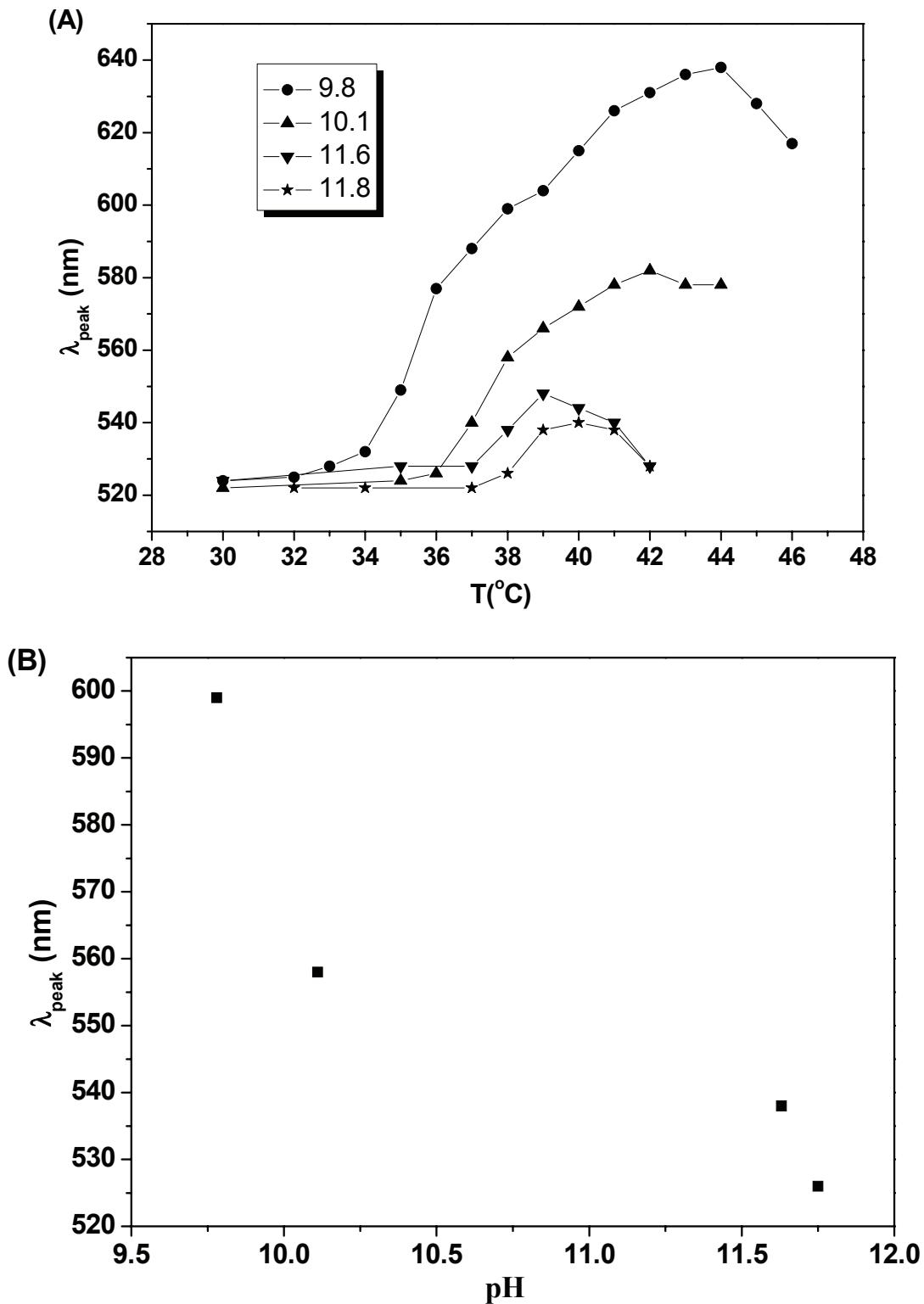
**Fig. S2** TEM images of (A-C) citrate protected AuNPs; (D-F) composite of AuNPs with HPEI1.2K-IBAm<sub>0.95</sub>; (G-I) composite of AuNPs with HPEI10K-IBAm<sub>0.63</sub>



**Fig. S3** The typical UV-vis spectra of aqueous solutions of AuNPs and their composites with HPEI-IBAm polymers



**Fig. S4** The  $\lambda_{\text{peak}}$  variation of the AuNP-HPEI1.2K-IBAm<sub>0.95</sub> composite in the presence of 0.10M NaCl versus (A) temperature at different pH condition; (B) pH at 38 °C



**Fig. S5** The  $\lambda_{\text{peak}}$  variation of the AuNP-HPEI10K-IBAm<sub>0.63</sub> composite versus (A) temperature at different pH condition; (B) pH at 38 °C