Supporting Information

A simple one-step procedure to gold nanostars in concentrated aqueous surfactant solutions

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**Fig. S1** Absorption spectra of SDS stabilized AuNSs and corresponding TEM micrograph.
Fig. S2 TEM micrographs of AOT-BDAC stabilized AuNSs at different BDAC concentration. (A) 0.001 M, (B) 0.005 M, (C) 0.01 M, (D) 0.05 M at lower magnification.

Fig. S3 Single nanostar TEM micrograph including HRTEM of the spike with corresponding FFT pattern of the marked square area.
Fig. S4 Dark field TEM micrograph of an AuNS-spike with the corresponding EDX spectrum

Fig. S5 Raman spectra at a low 4-NTP concentration ($10^{-6}$ M) in dependence on the integration time