

Electronic Supplementary Information

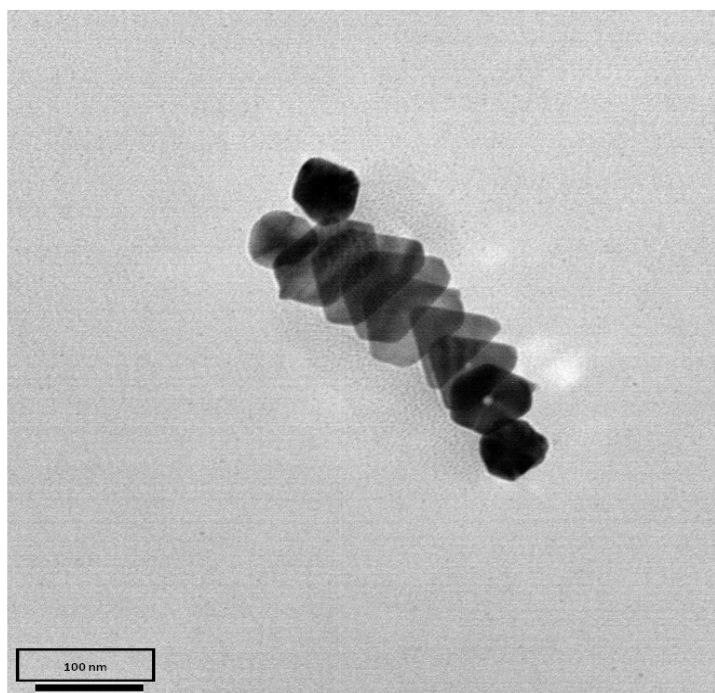
Length Dependent NLO Properties of 2D Hollow Gold Nanoprism Guided Assembly

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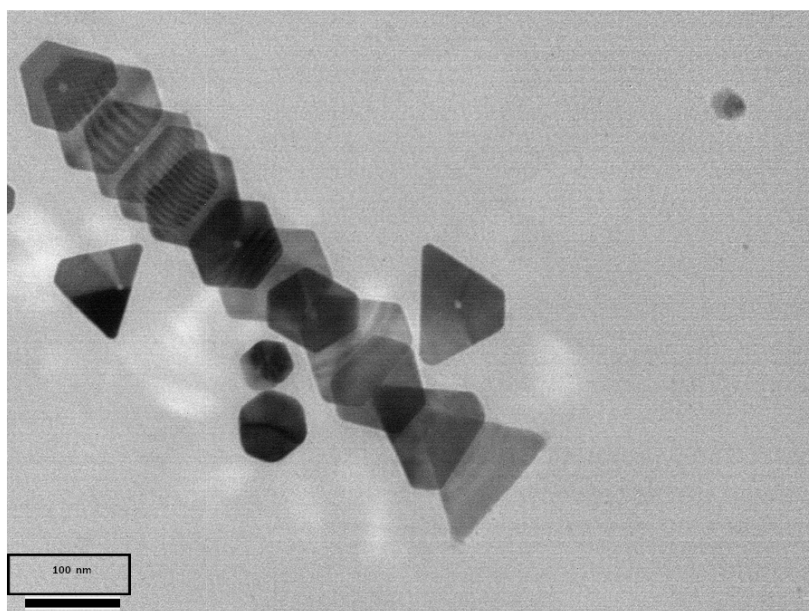
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Content

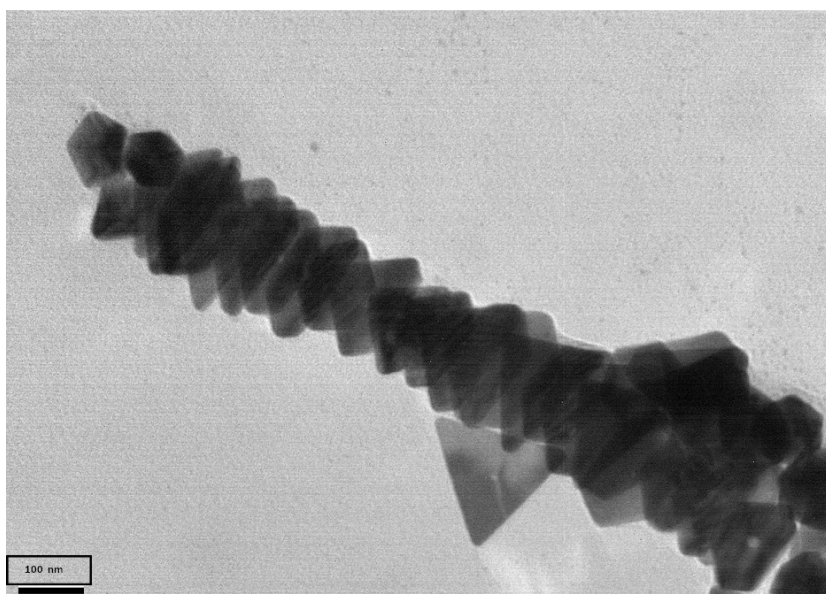
1. TEM Data



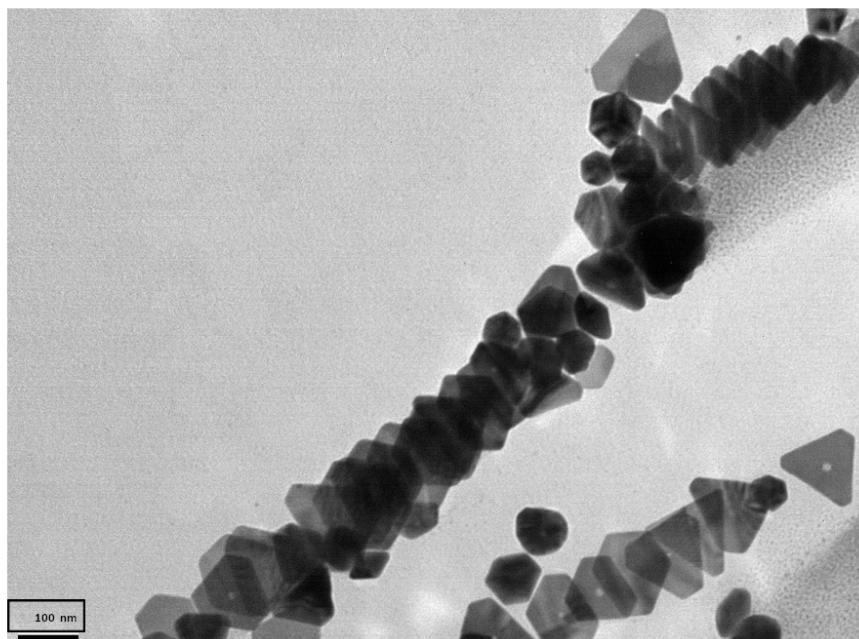
A



B



C



D

Figure 1: Transmission electron microscope (TEM) images showing the formation of guided gold nanoprism 2D assembly chain of different lengths by varying the concentration of DTT. **A)** In the presence of 10^{-9} M DTT; **B)** In the presence of 10^{-8} M DTT; **C)** In the presence of 10^{-7} M DTT; **D)** In the presence of 10^{-6} M DTT.

2. Hollow gold nanoprism Synthesis

Our hollow gold nanoprism (4 nm hole size) synthesis was achieved using seed-mediated method. For this purpose, 0.5 mL of 10^{-2} M AgNO_3 was mixed with 0.2 mL 2.5×10^{-2} M TSC in 20 mL nano-pure water. After that we mixed them well and then we added 60 μL 10^{-1} M NaBH_4 solution dropwise. Solution turns yellowish immediately, which indicates the formation of nano seed. In the second step, we have used ascorbic acid as a weak reductant and CTAB as a shape templating surfactant. L-ascorbic acid (AA) has been used as a mild reducing agent to reduce gold and residual silver ions in solution. In 45 mL of nanopure water we have dissolved 0.49 g of CTAB (results ~ 30 mM CTAB concentration). In this solution we added 2 mL of 10^{-2} M AgNO_3 , 300 μL of 10^{-2} M HAuCl_4 and 320 μL 10^{-1} M AA one after another. Once again we added 300 μL 10^{-2} M HAuCl_4 and 320 μL AA. Finally when color turns colorless we have added 300 μL of Ag-seed to achieve 4 nm hole sized Au-nanoprism. Deposition of atomic gold results in the thickening of the wall and the central pore to shrink.

3. HRS Experimental Details

Details of the HRS experimental setup have been reported before^{7,9,25}. For β measurement, we have used 1907 nm as an excitation wavelength. Nd:YAG laser (Spectra Physics) delivering at fundamental wavelength of 1064 nm with pulse duration of 8 ns was used as the major laser source. The 1064 nm initial wavelength was then shifted to 1907 nm by a Raman shifter with a high-pressure H_2 cell. The HRS light was separated from its linear counterpart by a 3 nm bandwidth interference filter and a monochromator and then detected with a cooled photomultiplier tube.