

Electronic Supporting Information

Shape-controlled synthesis of three-dimensional triangular Bismuth microstructures and sensing of H₂O₂

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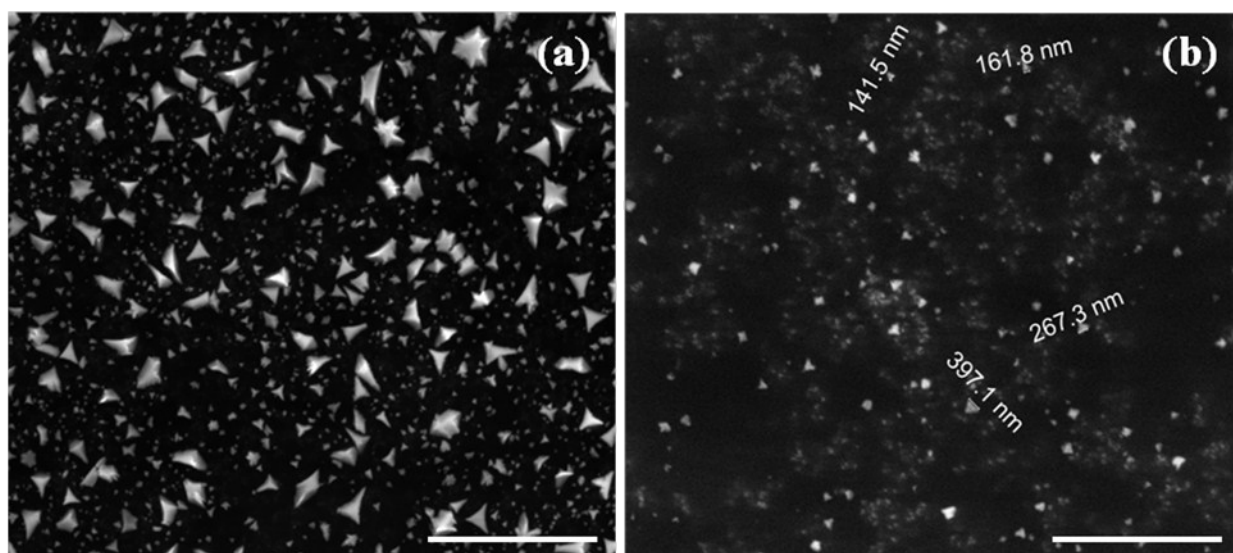


Fig. S1, ESI: SEM images of Bi deposited from 0.1 M HNO₃ with two different Bi(NO₃)₃ concentrations and deposition times: (a) 10 mM and 60s, (b) 1 mM and 10s.

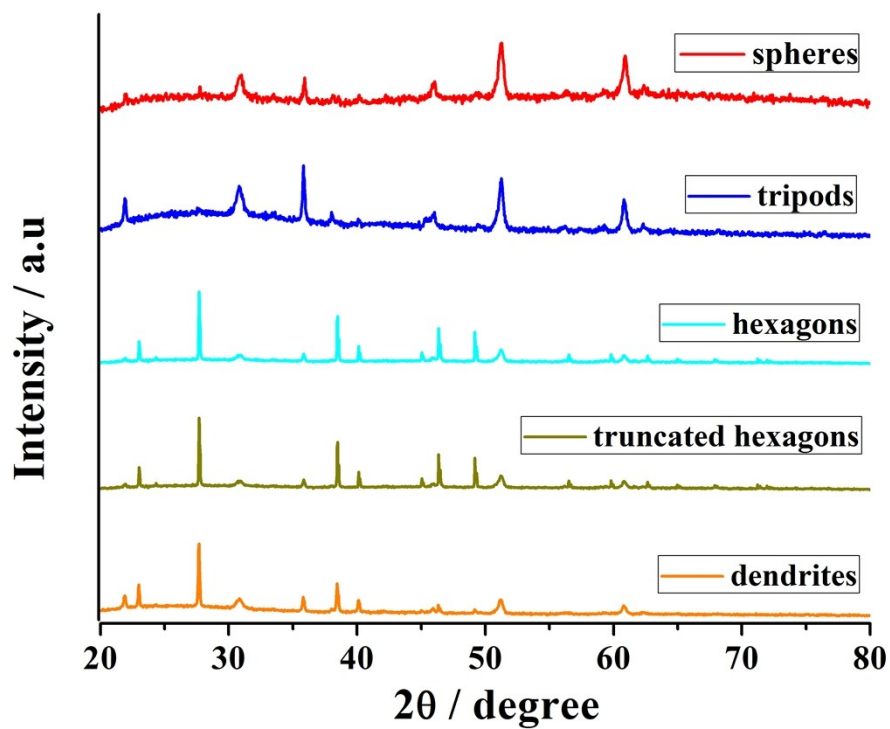


Fig. S2, ESI: XRD patterns of different morphologies of Bi. The XRD pattern of the bare ITO electrode is shown in Fig. 3d of the text.

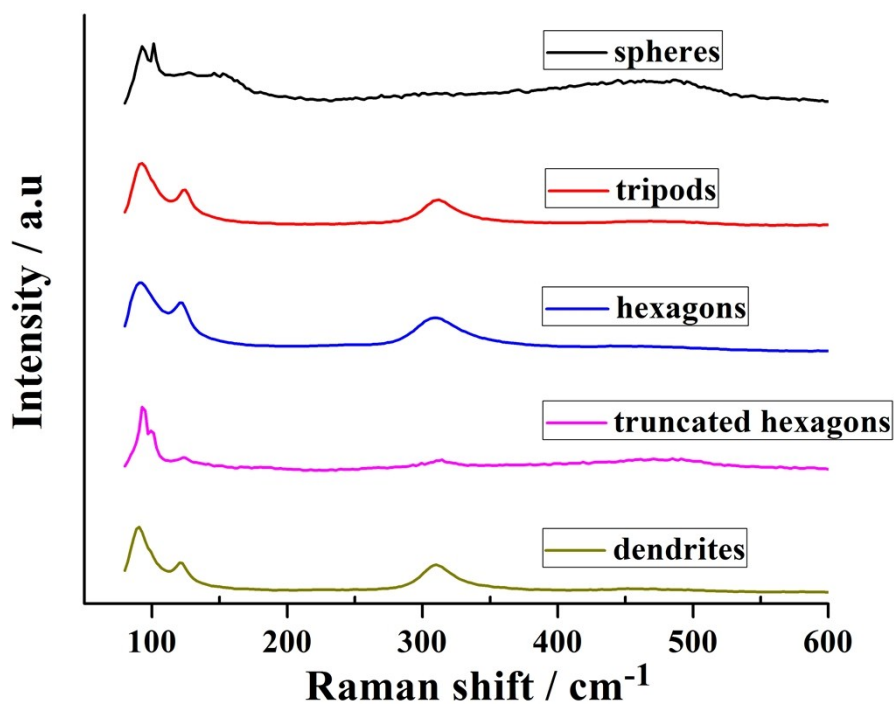


Fig. S3, ESI: FT-Raman spectra of various geometries of Bi.

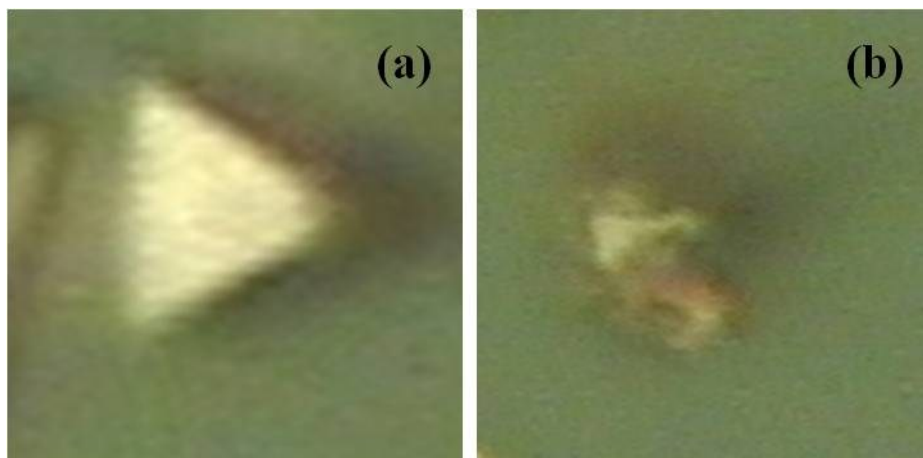


Fig. S4, ESI: Optical microscopic image of a triangular Bi particle using the confocal microscopic FT-Raman spectroscopy, depicting the melting: (a) initial and (b) after 60 s

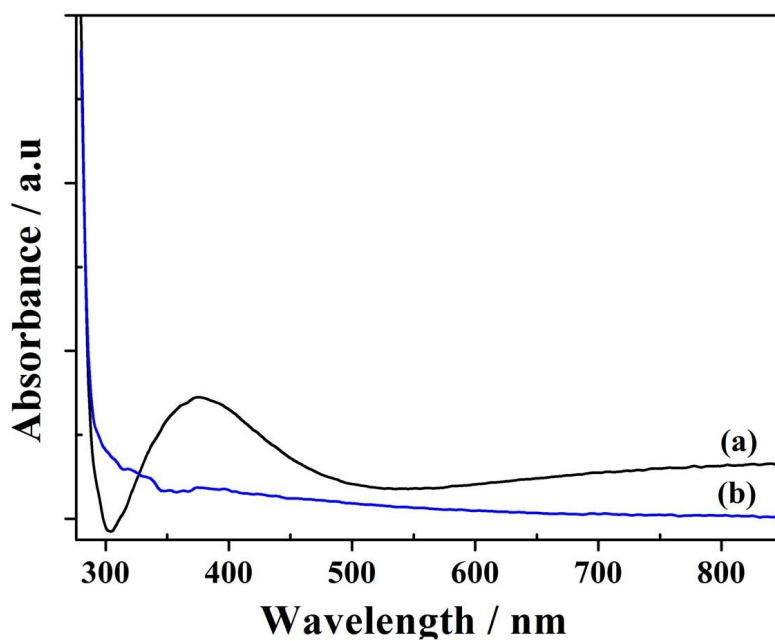


Fig. S5, ESI: UV-Vis absorption spectra for (a) hexagons and (b) dendrites of Bi.

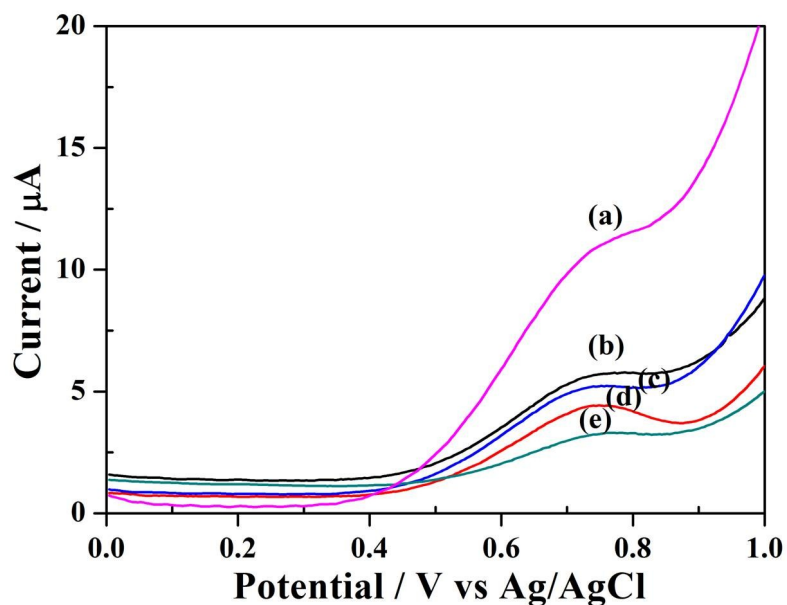


Fig. S6, ESI: Differential Pulse Voltammograms of different morphologies of Bi modified ITO electrode in 0.2 M PBS electrolytes containing 1 mM H_2O_2 : (a) triangles, (b) dendrites, (c) hexagons, (d) tripods and (e) microspheres of Bi. The optimized DPV parameters are provided in Fig. 9 of the text.

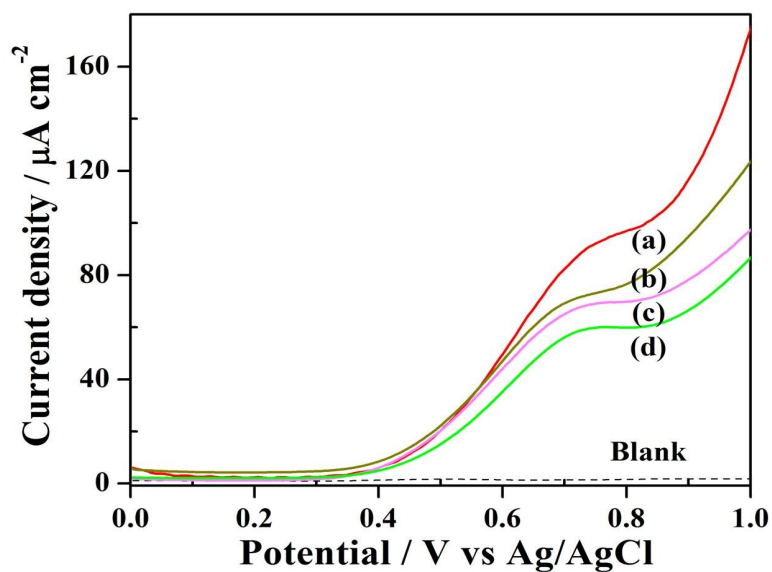


Fig. S7, ESI: Differential Pulse Voltammograms of the Bi deposited on ITO electrode using different deposition times: (a) 10s, (b) 30s, (c) 60s and (d) 300s, in 0.2 M PBS electrolyte containing 1 mM H_2O_2 . The optimized DPV parameters are provided in Fig. 9 of the text. The deposition higher than 10 s lead to aggregated structures and can be considered as ‘bulk’ deposition of bismuth.

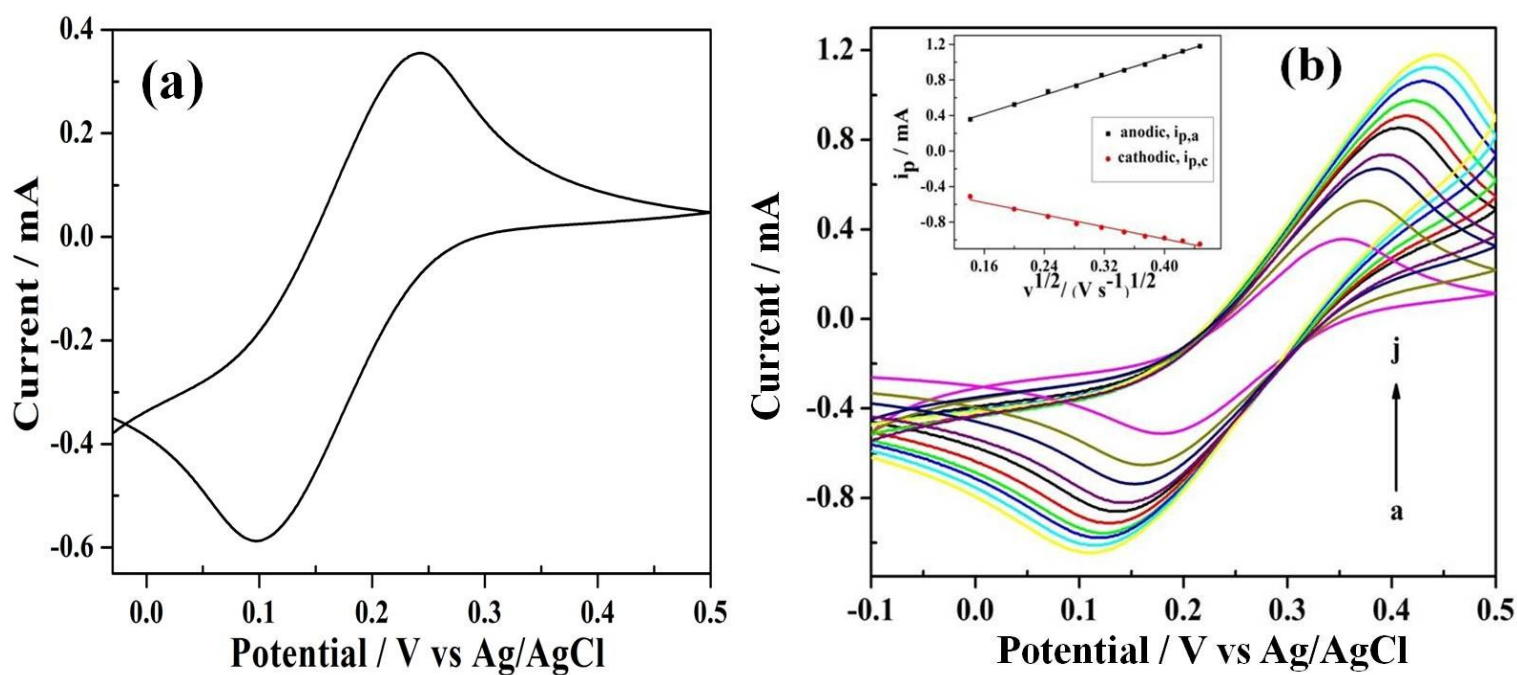


Fig. S8, ESI: Estimation of the active surface area of Bi TPs: (a) Cyclic Voltammograms of Bi TPs modified ITO in 10 mM of $\text{K}_3\text{Fe}(\text{CN})_6$ and 0.1 M KCl solution at scan rate of 10 mV/s; (b) Cyclic Voltammograms of Bi TPs modified ITO electrodes at scan rates ranging from 0.02 to 0.20 V/s (a to j). The inset depicts the variation of the anodic and cathodic peak currents with the square root of the scan rate.