

Supporting Information

2D Stranski–Krastanov Growth of Planar AuAg Nano-Dendrimers for Enhanced Visible-Light Plasmonic Catalysis

Qiuxiang Sun,^{a†} Xiangyu Tong,^{bc†} Xusheng Chen,^d Zhaoqiang Wang,^d Xiaohu Wu,^{be*}
Yanyun Ma,^{f*} Yiqun Zheng^{g*}

^a Jining Institute of Quality & Metrology Inspection, Jining, Shandong 272000, China

^b Yangtze Laboratory, Wuhan 430205, China

^c College of Electromechanical Engineering, Qingdao University of Science and Technology, Qingdao, Shandong 266061, China

^d School of Resource & Environment and Safety Engineering, Jining University, Qufu, Shandong 273155, China

^e School of Integrated Circuits, Hubei University, Wuhan 430062, China

^f Institute of Functional Nano & Soft Materials (FUNSOM), Jiangsu Key Laboratory of Advanced Negative Carbon Technologies, Soochow University, Suzhou, Jiangsu 215123, China

^g School of Chemistry, Chemical Engineering, and Materials, Jining University, Qufu, Shandong 273155, China

†These authors contribute equally to this work.

***Corresponding authors:** Prof. Dr. Y. Zheng, E-mail: yzheng@jnxu.edu.cn; Prof. Dr. X. Wu, wuxiaohu@pku.org.cn; Prof. Y. Ma, E-mail: mayanyun@suda.edu.cn

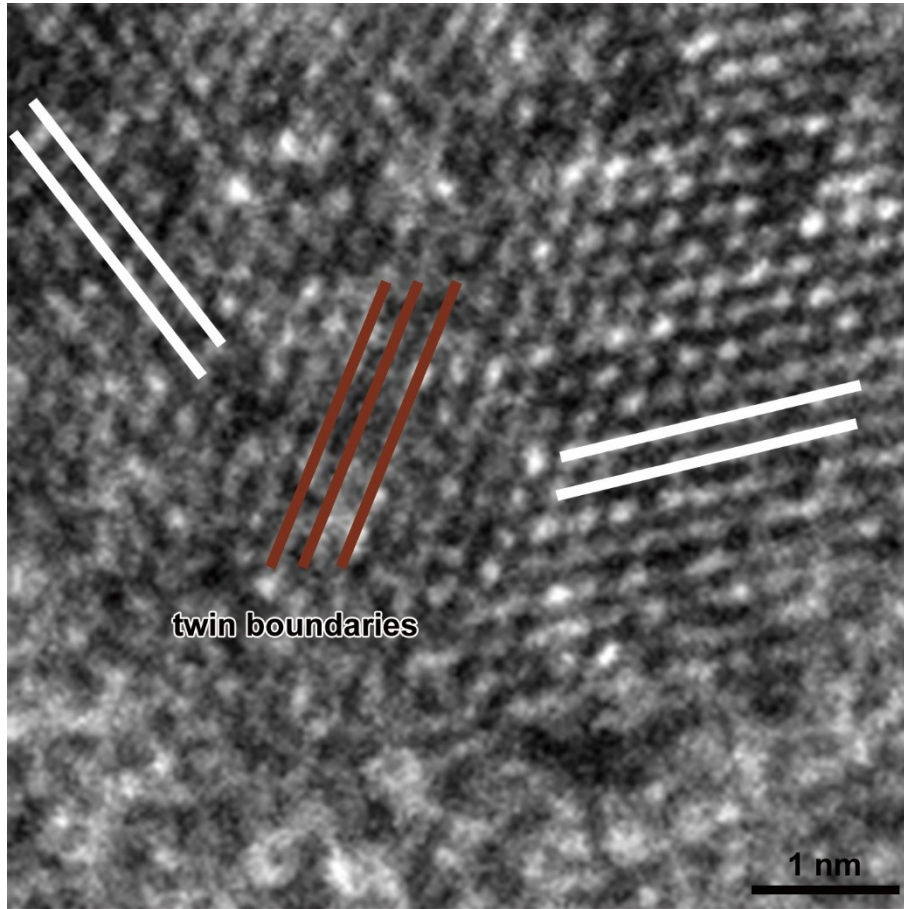


Figure S1. HRTEM image of AuAg NDMs at the branching node.

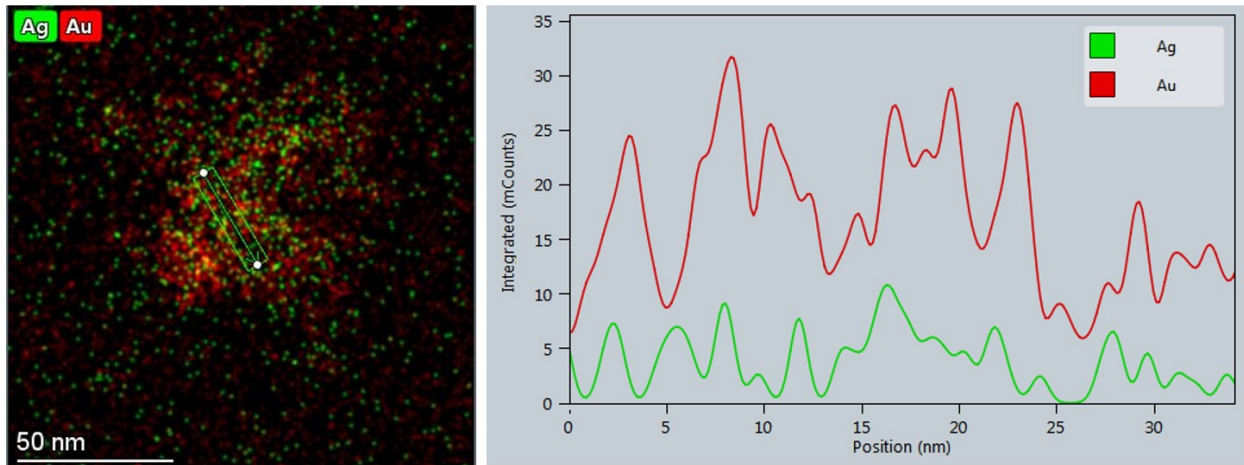


Figure S2. EDX-STEM line-scan profile across an individual 2D AuAg NDM.

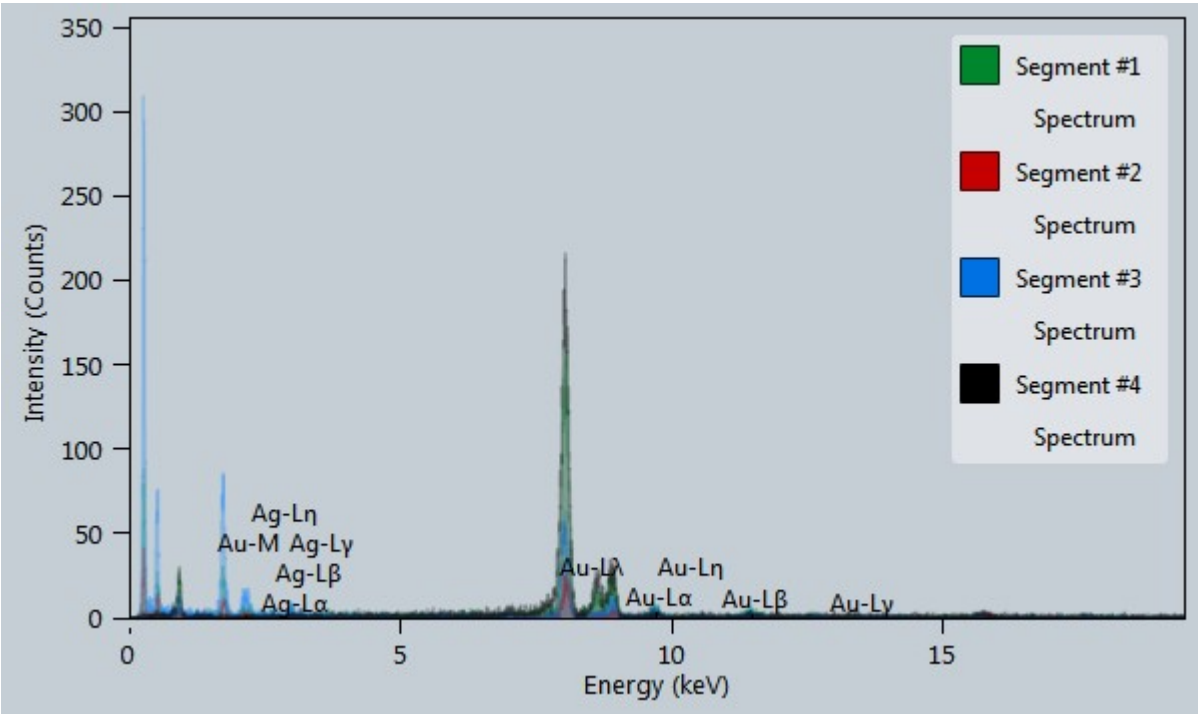


Figure S3. EDS spectra of 2D AuAg NDMs.

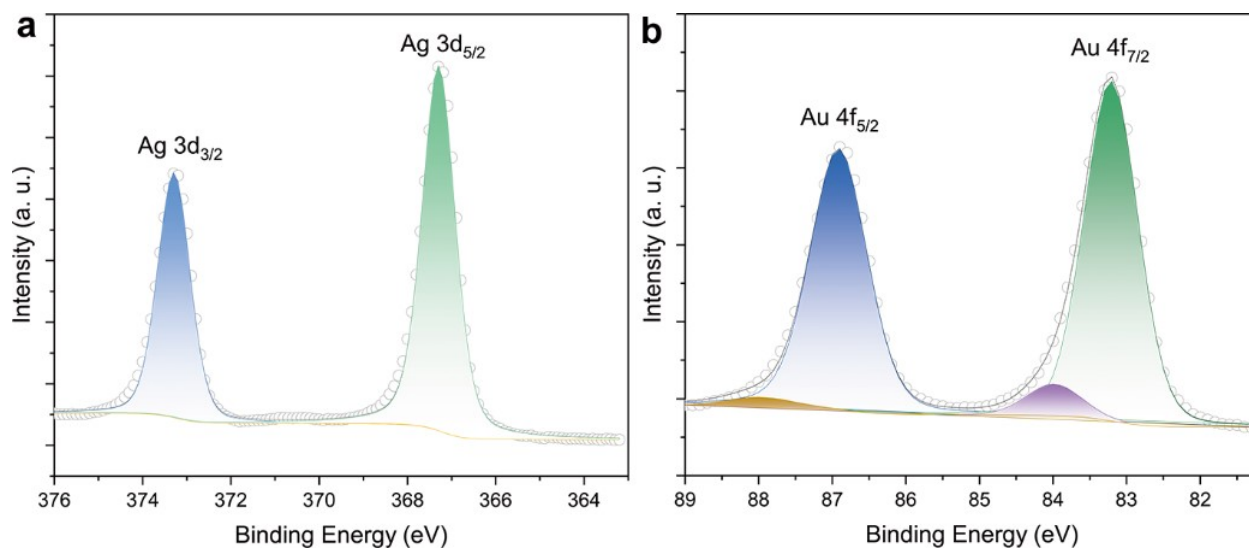


Figure S4. XPS spectra of AuAg NDMs: (a) Ag 3d; (b) Au 4f.

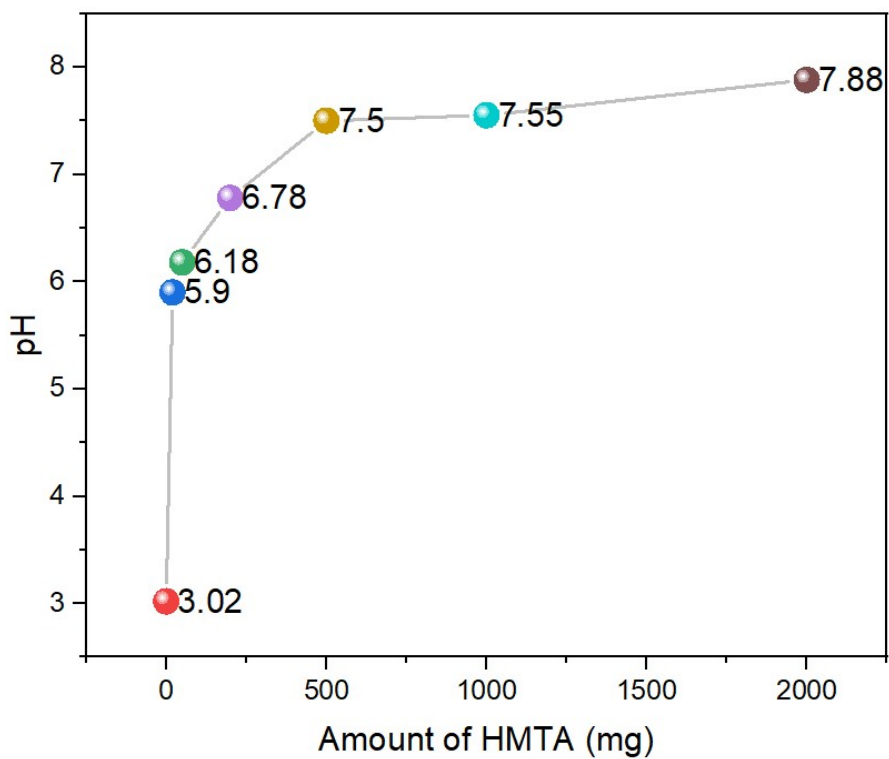


Figure S5. Plot showing the change of pH versus the amount of HMTA.

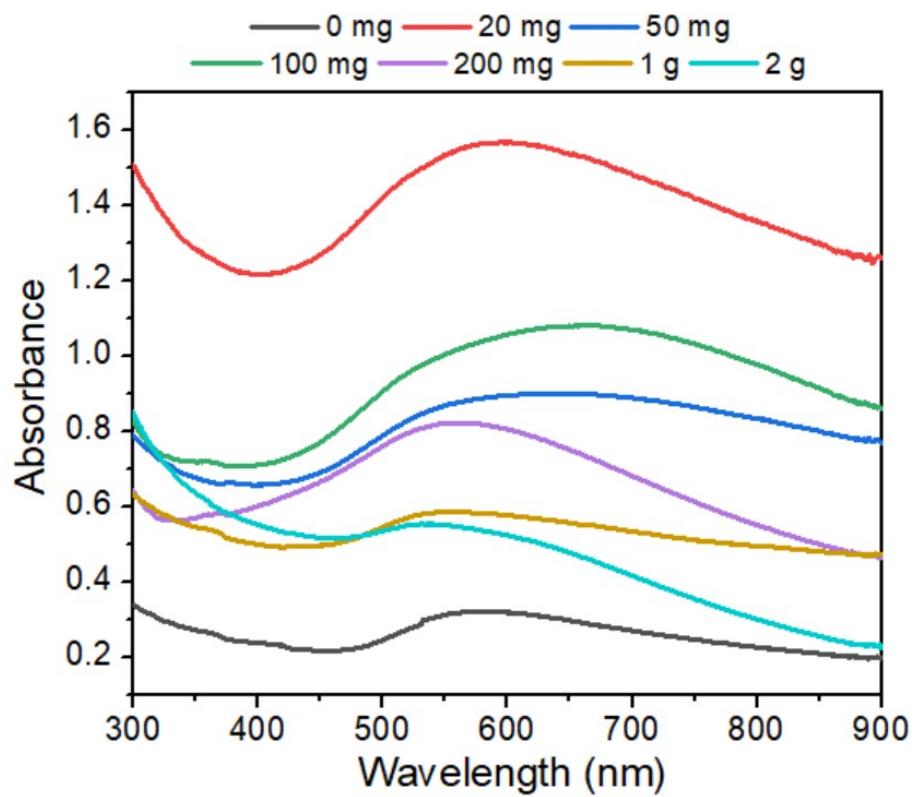


Figure S6. UV-Vis extinction spectra of the AuAg nanostructures synthesized with varying amounts of HMTA.

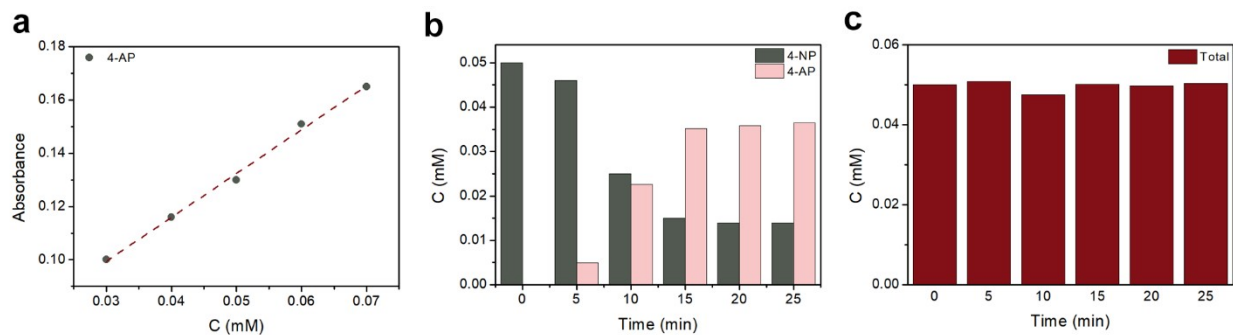


Figure S7. Calibration curves and kinetic data for 4-NP and 4-AP. (a) Calibration plots showing the linear relationship between absorbance and concentration for 4-nitrophenol (4-NP) and 4-aminophenol (4-AP). (b, c) Histograms depicting the concentration profiles of 4-NP and 4-AP at various time points during the reaction, showing (b) individual concentrations and (c) the total concentration of both species over time.

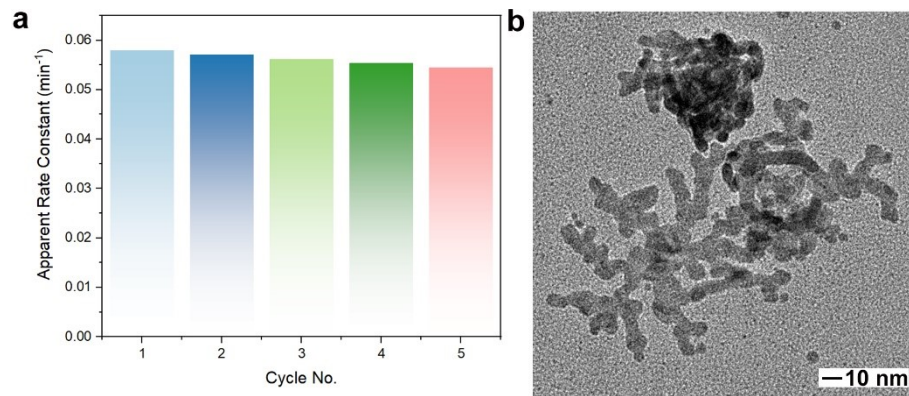


Figure S8. (a) Apparent rate constants for five consecutive catalytic cycles under 590 nm LED irradiation. (b) TEM image of AuAg NDMs after the fifth cycle.