Electronic Supplementary Information

Robust Synthesis of Gold Rhombic Dodecahedra with Well-Controlled Sizes and Their Optical Properties

Kyeong Woo Choi,^{a,†} Do Youb Kim,^{a,†} Xiao-Lan Zhong,^b Zhi-Yuan Li,^b Sang Hyuk Im,^{*c} and O Ok Park^{*a,d}

^[a]Department of Chemical and Biomolecular Engineering (BK21 graduate program), Korea Advanced Institute of Science and Technology (KAIST), 291 Daehakro, Yuseong-gu, Daejeon 305-701, Republic of Korea

^[b]Institute of Physics, Chinese Academy of Science, Beijing, 100080, People's Republic of China

^[c]KRICT-EPFL global Research Laboratory, Advanced Materials Division, Korea Research Institute of Chemical Technology (KRICT), 19 Singsungno, Yuseong-gu, Daejeon 305-600, Republic of Korea

^[d]Department of Energy Systems Engineering, Daegu Gyeongbuk Institute of Science and Technology (DGIST), 50-1, Sang-ri, Hyeonpung-myeon, Dalseong-gun, Daegu 711-873, Republic of Korea

*These authors contributed equally to this work.

*To whom correspondence should be addressed. e-mail: ookpark@kaist.ac.kr; imromy@krict.re.kr



Fig. S1 A) TEM image of the single-crystal spherical Au seeds with a diameter of 10.2 ± 0.6 nm. B) HRTEM image of an individual Au seed and the corresponding FFT pattern (inset).



Fig. S2 UV-vis extinction spectrum of the spherical Au seeds with a diameter of 10 nm dispersed in water.



Fig. S3 The plots of the calculated (red) and experimentally measured (black) LSPR peak position as a function of the edge length of Au rhombic dodecahedra. The calculated LSPR peak positions were obtained from perfect rhombic dodecahedra with certain edge lengths. The all calculations for the perfect Au rhombic dodecahedra were based on discrete dipole approximation (DDA) method.