

Gold nanoparticles sensitize the photocatalytic activity of stable and recyclable Bi_2S_3 photocatalysts for effective wastewater treatment

Njemuwa Nwaji^a, Eser Metin Akinoglu^{a, b}, Michael Giersig^{a, c}

^aInternational Academy of Optoelectronics at Zhaoqing, South China Normal University, Liyuan Street, 526238 Guangdong, China

^bARC Centre of Excellence in Exciton Science, School of Chemistry, University of Melbourne, Parkville, VIC, 3010, Australia

^cInstitute of Fundamental Technological Research, Polish Academy of Sciences, 02-106 Warsaw, Poland

Supplementary Information

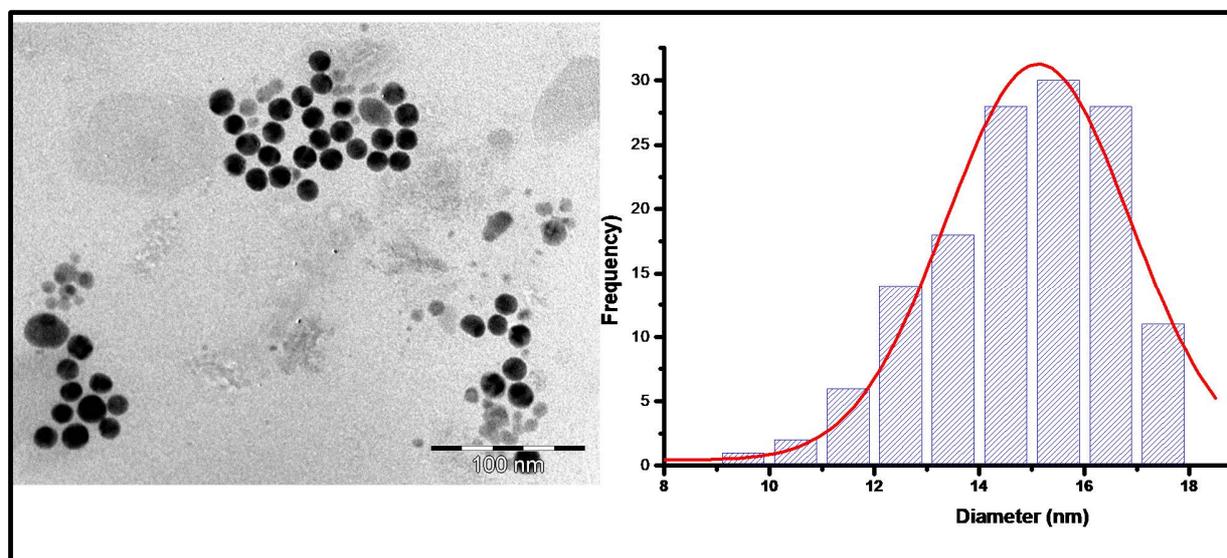


Figure S1: TEM and size distribution for the AuNPs

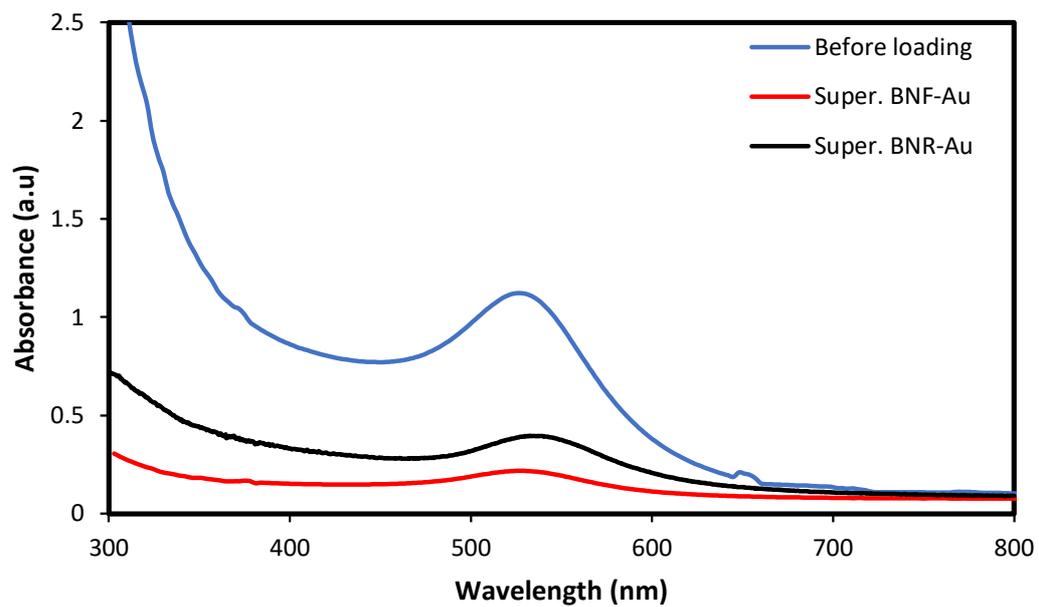


Figure S2: Absorption spectra of AuNPs before (blue) and the supernatant (super.) solution after forming heterostructured BNF-Au (red) and BNR-Au (black)

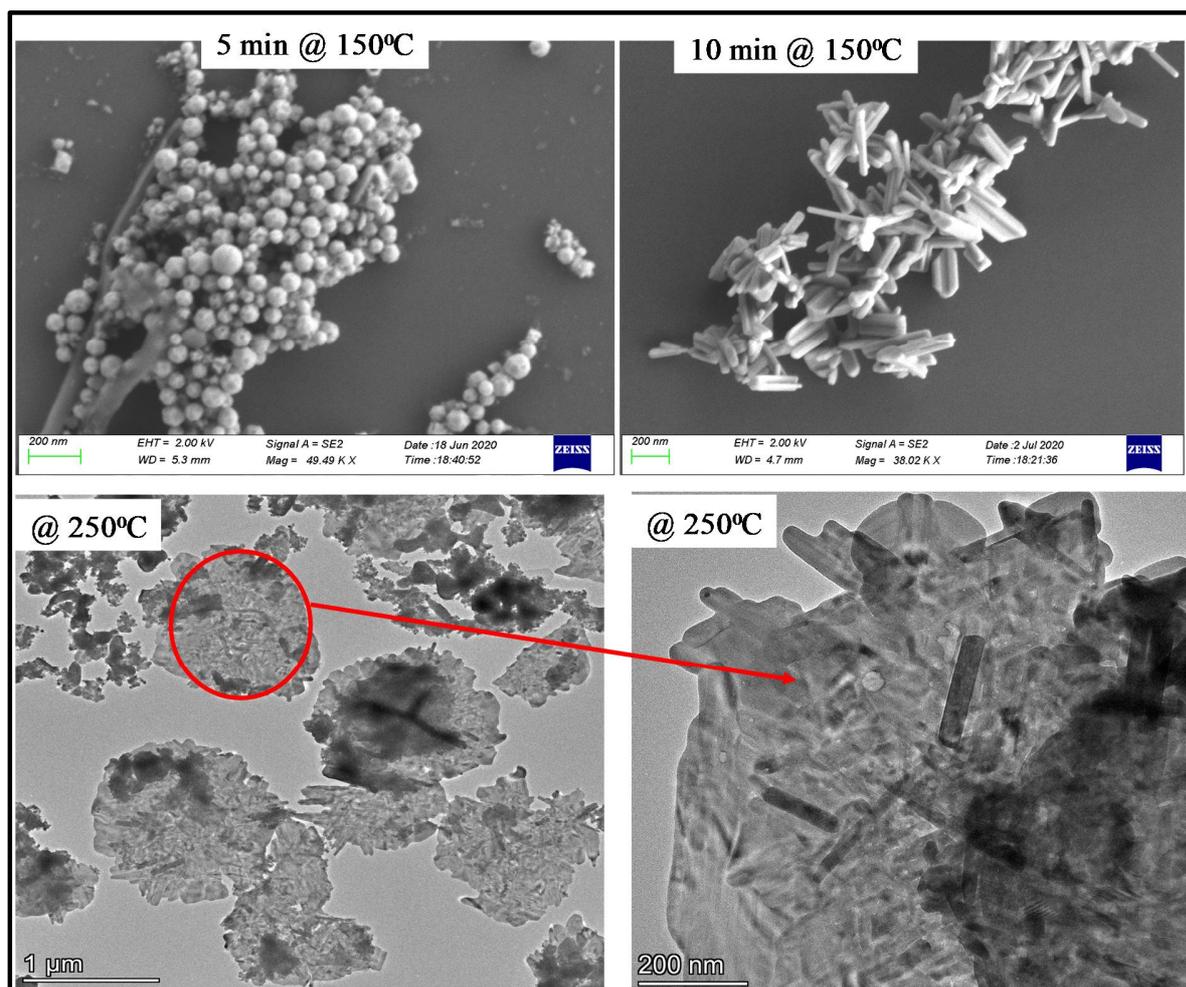


Figure S3: SEM images of aliquot of the reaction mixture after 10 min @ 150 °C (upper left), 15 min (upper right), TEM (bottom left) and high magnification TEM image of formed nanoflowers at 250 °C

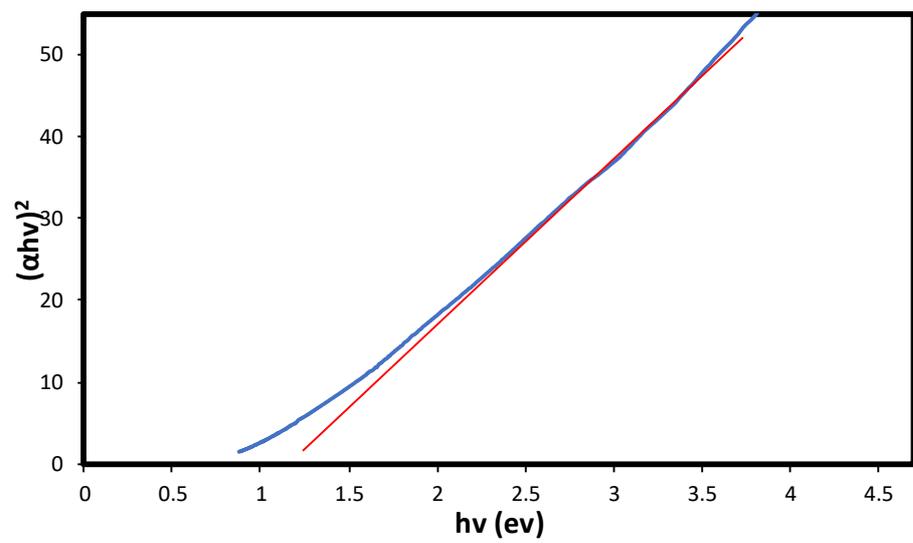


Figure S4: The Kubelka–Munk transformations plot of $(\alpha hv)^2$ versus hv for BNF

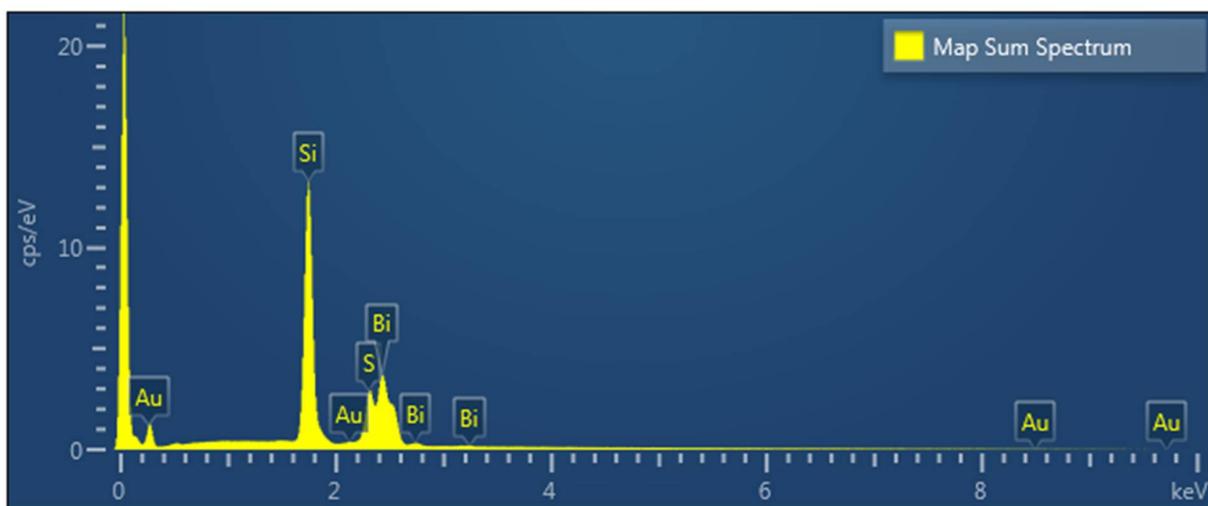
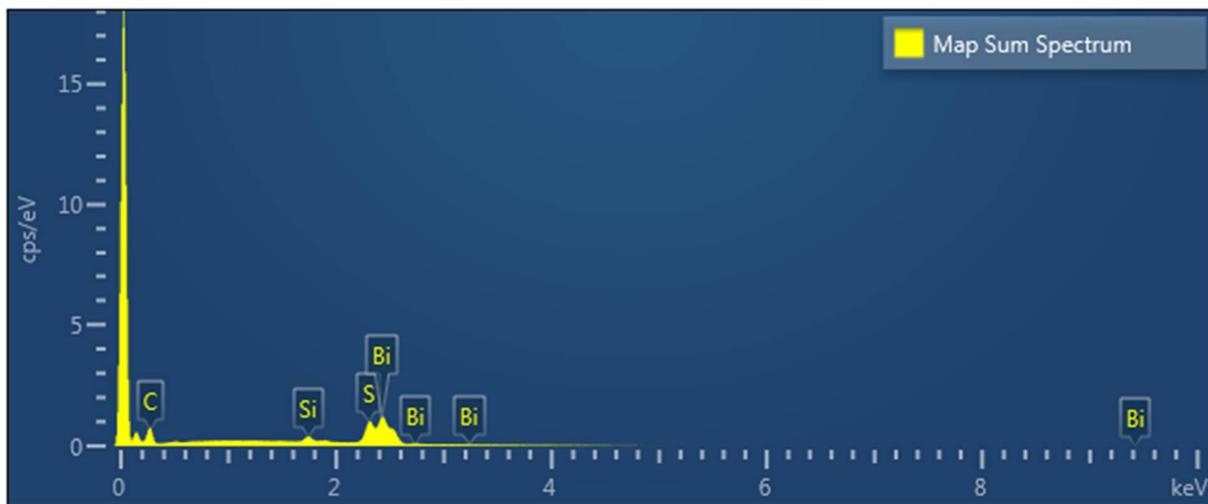


Figure S5: Representative EDX spectra of BNF and BNF-Au

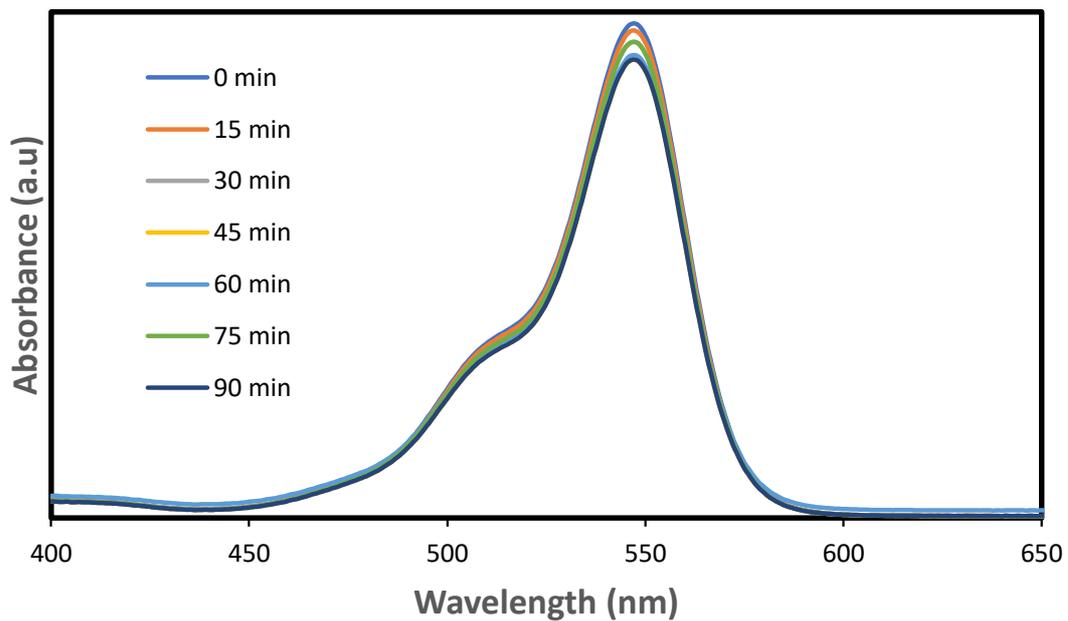


Figure S6: Absorbance changes of RhB without light after 12 h. adsorption of the photocatalyst

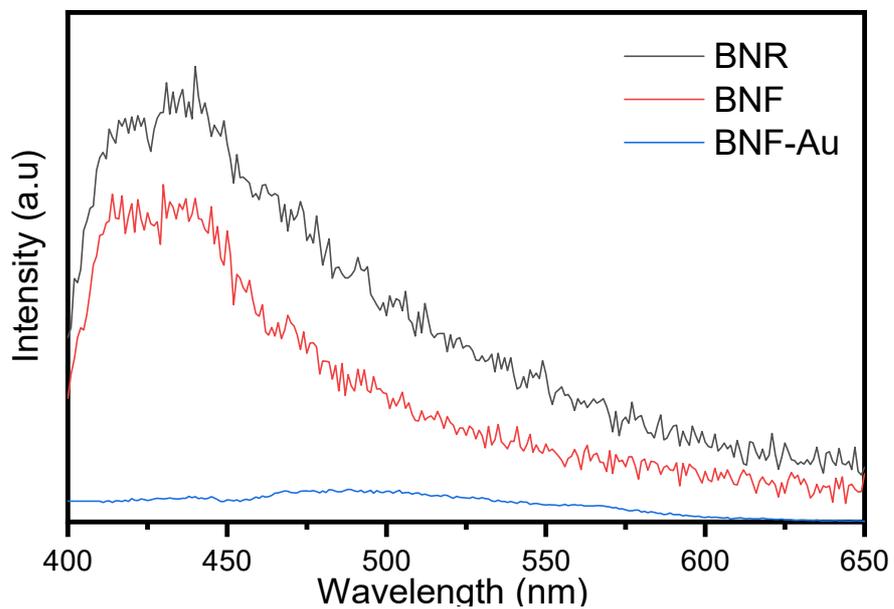


Figure S7: Photoluminescence spectra of nanostructures recorded at excitation wavelength of 350 nm

Before
degradation

After
degradation

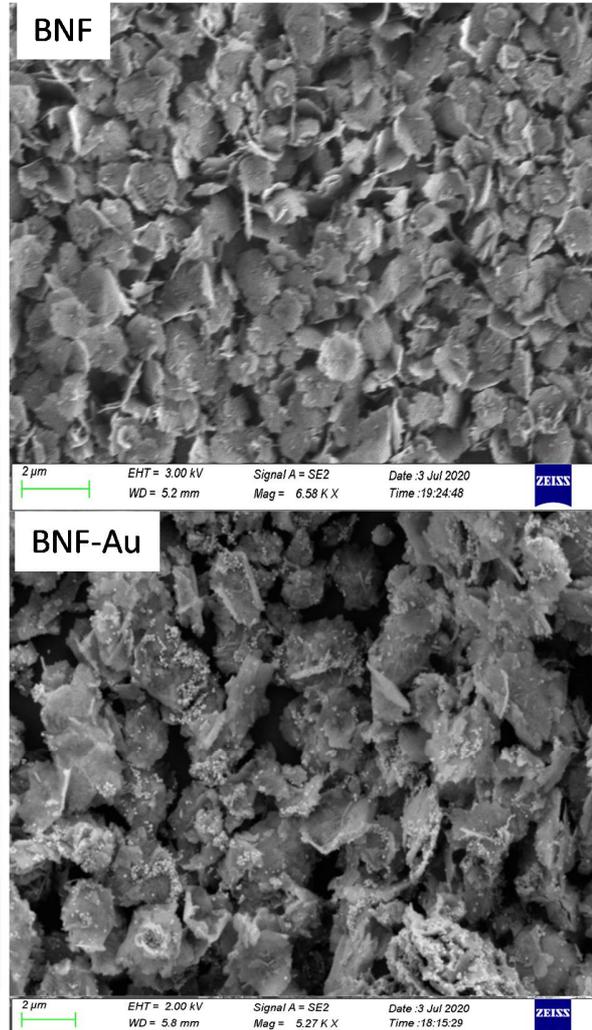
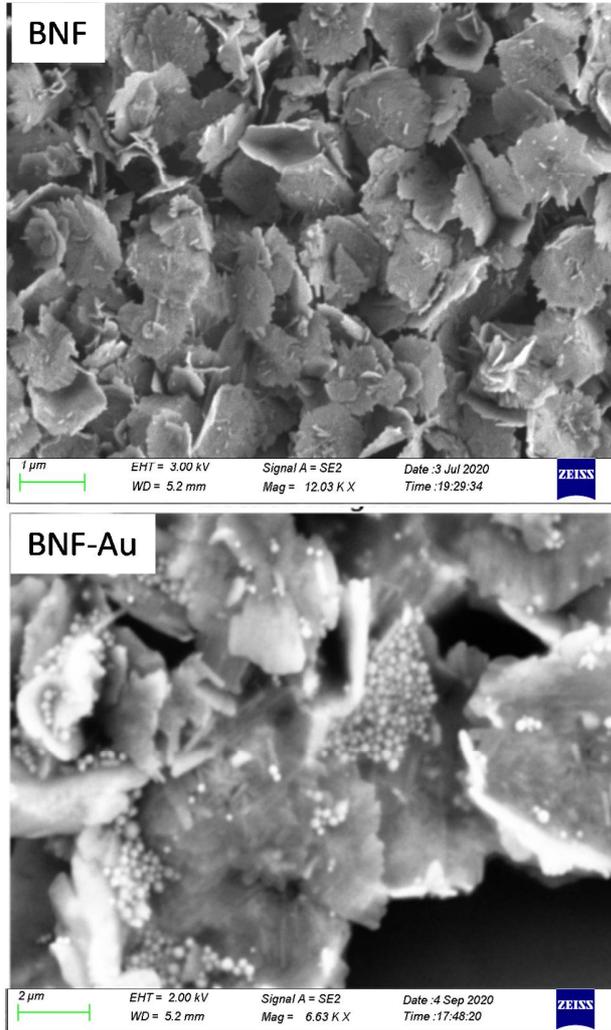


Figure S8: SEM images of BNF and BNF-Au before and after degradation experiment.