

Enhanced multi-phonon Raman scattering and nonlinear optical power limiting in ZnO:Au nanostructures

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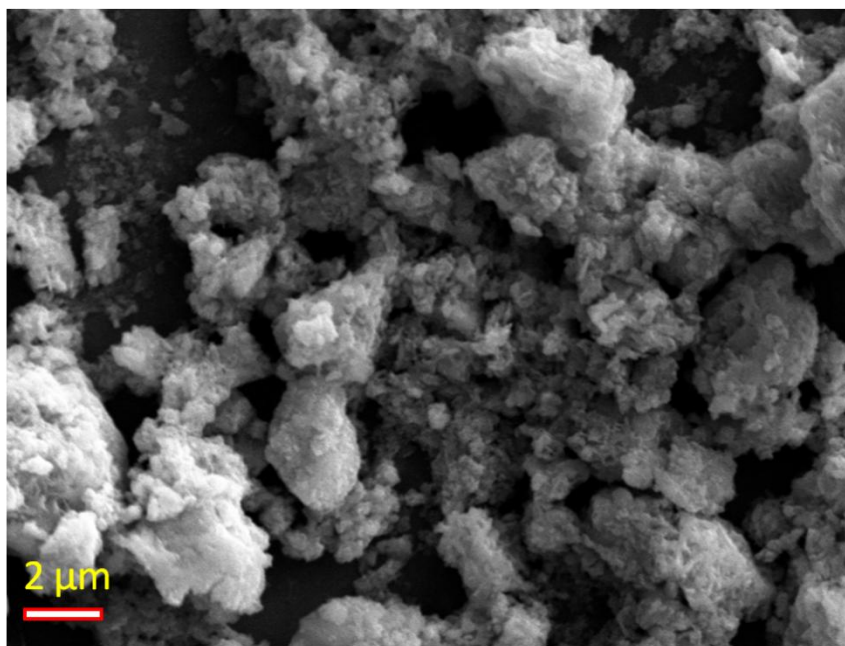


Figure ES1: SEM image of pure ZnO (without gold content). Figure depicts the irregular, agglomerated morphology.

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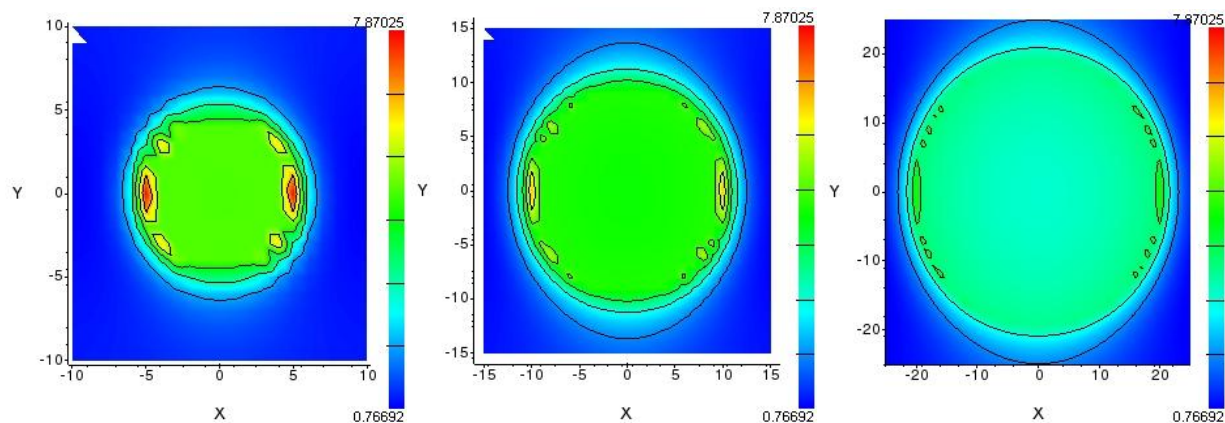


Figure ES2: Electric field $|E_{out}|^2$ outside gold nanospheres of radius 5, 10 and 20 nm respectively, in a medium with refractive index of 2.0034 (ZnO).

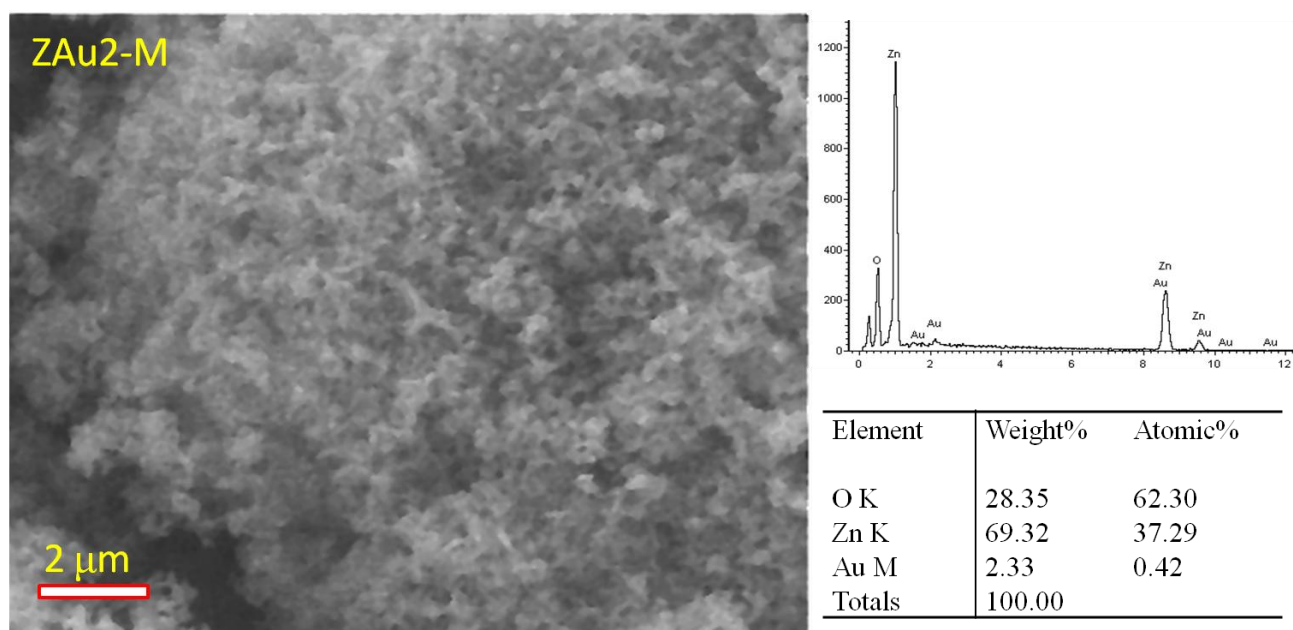


Figure ES3: SEM image of the ZAu2-M sample exhibits spherical granules in an agglomerated form. EDX analysis confirms the presence of Au along with Zn and O in the samples.

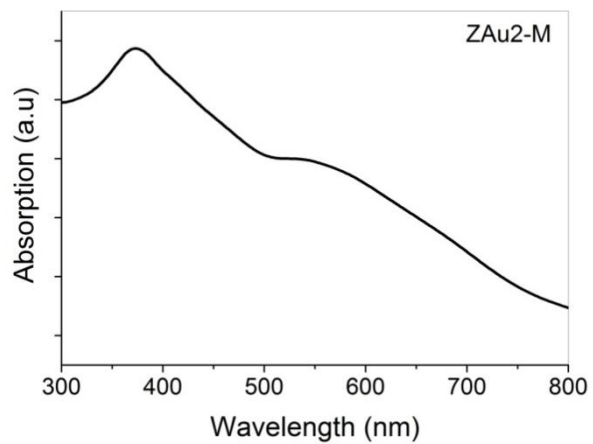


Figure ES4: Optical absorption spectrum of ZAu2-M sample.

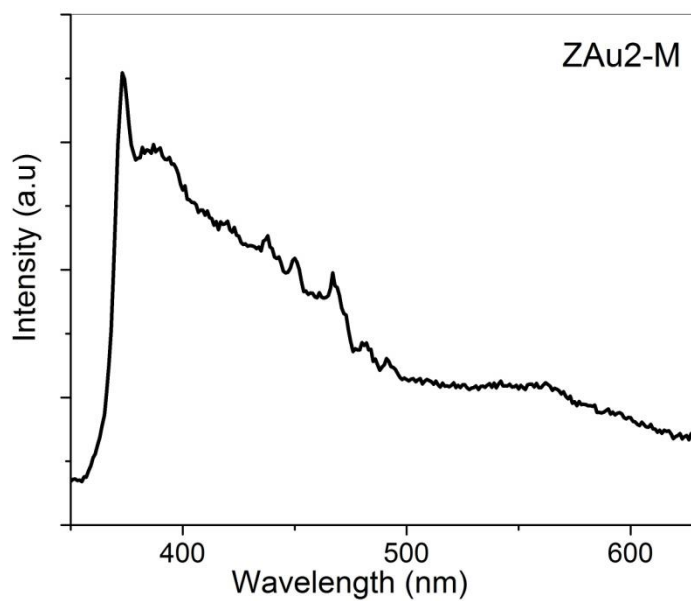


Figure ES5: Photoluminescence spectrum of ZAu2-M sample.

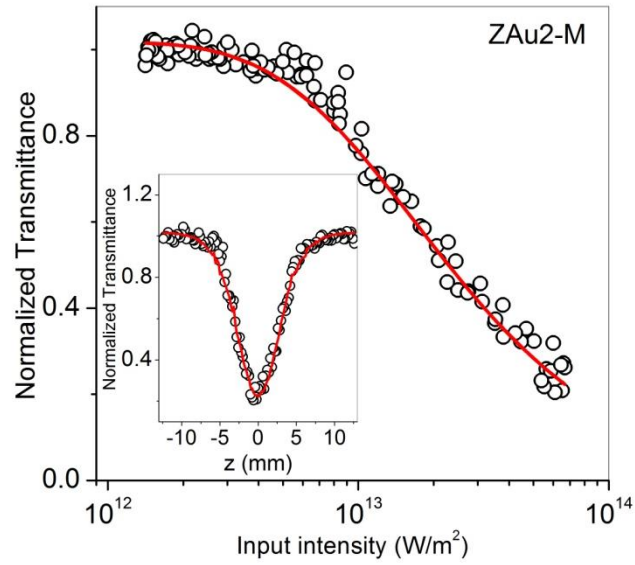


Figure ES6: Intensity dependent optical transmission of ZAu2-M sample calculated from the open aperture Z-scan curves of the samples (given in inset) measured using 532 nm, 5 ns laser pulses (incident laser energy of $150 \mu J$). Circles are data points while solid lines are numerical fits.