Supporting Information

Highly Stable Enhanced Near-Infrared Amplified Spontaneous Emission in Solution-processed Perovskite Film by Employing Polymer and Gold Nanorods

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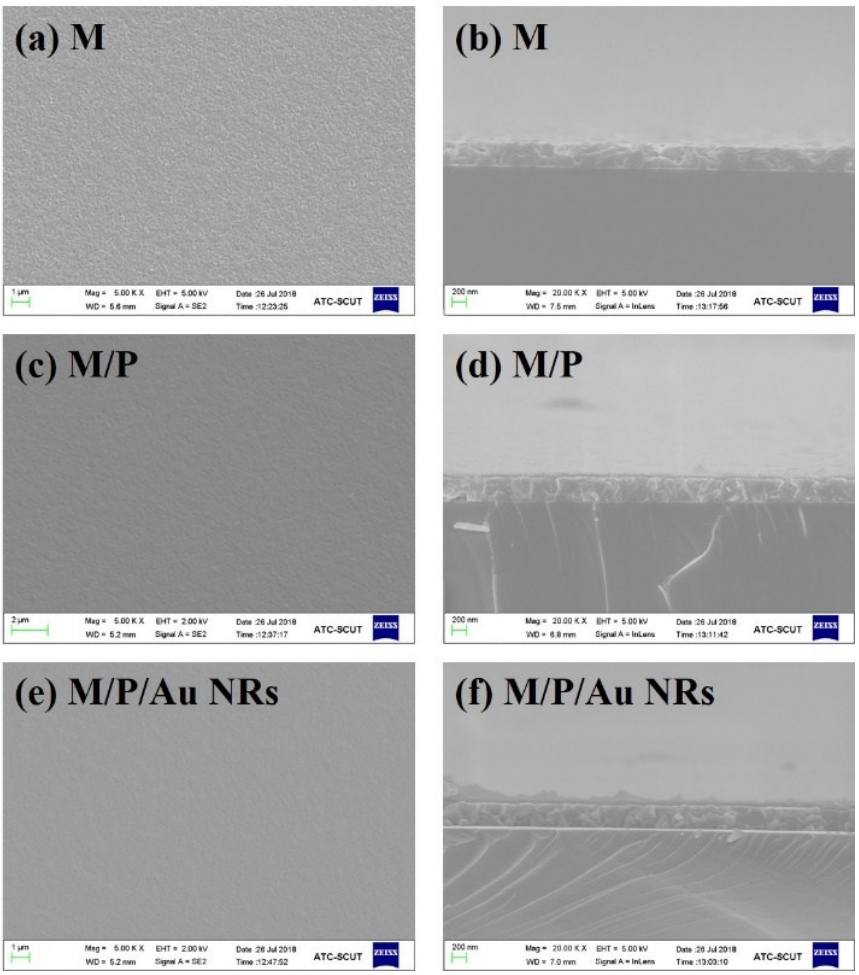

Figure S1. SEM and corresponding cross section images of $MAPbI_3$ with PMMA and Au NRs coating

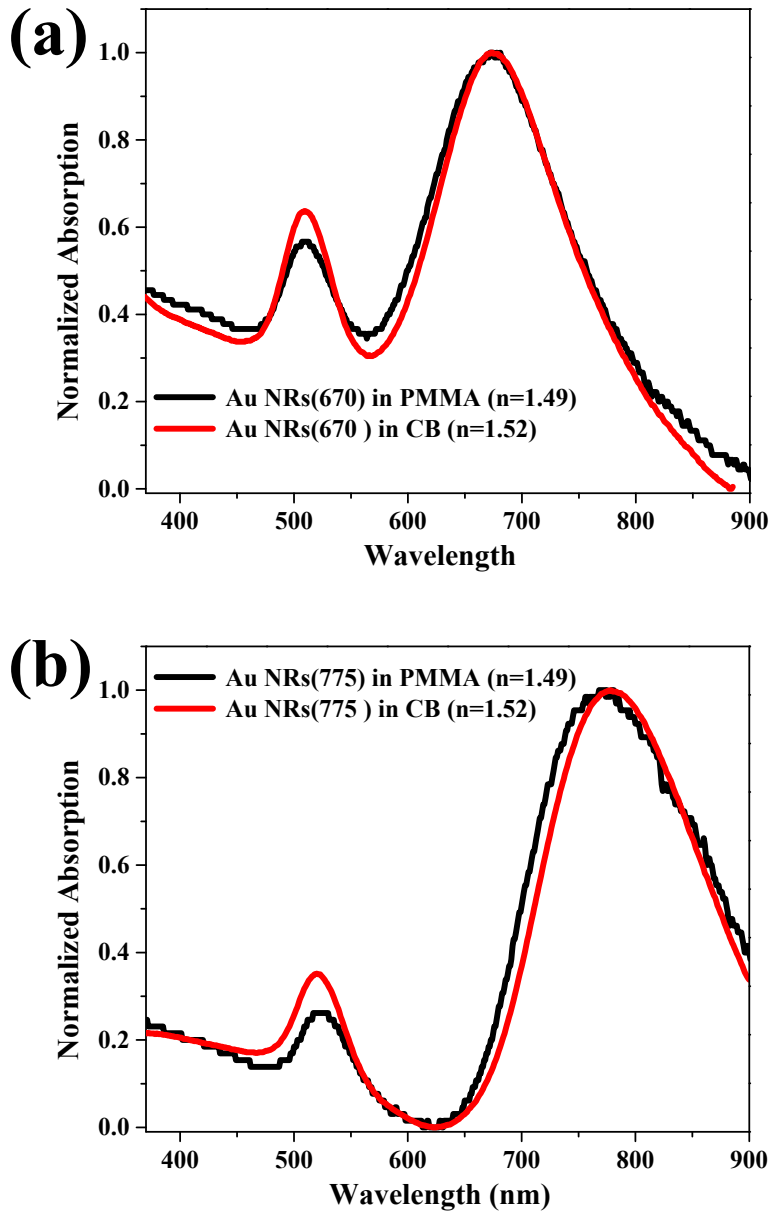

Figure S2. Normalized extinction spectra of PEG-SH-capped Au NRs in PMMA film and CB solution with different rod-length and longitudinal LSPR band, (a) LSPR=690 nm, Size: 22×45 nm, (b) LSPR= 775 nm, Size: 23×70 nm

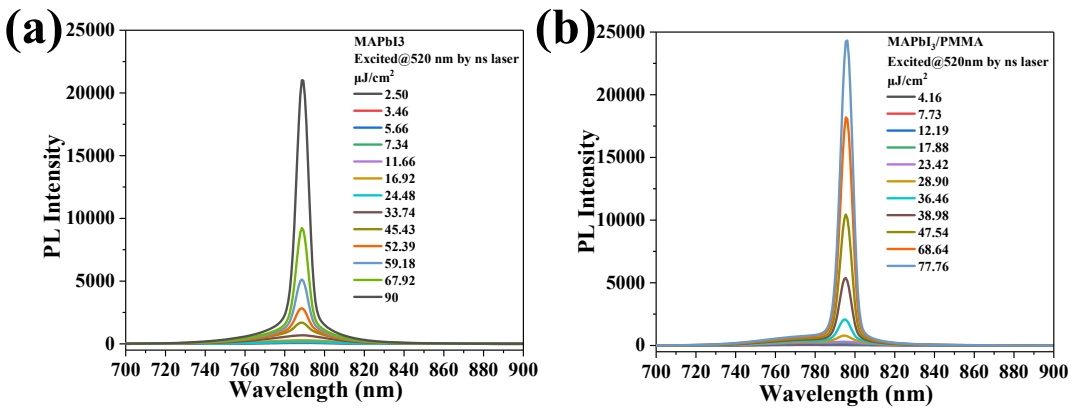

Figure S3. ASE performance of $MAPbI_3$, $MAPbI_3$/PMMA film excited by ns laser at 520 nm.

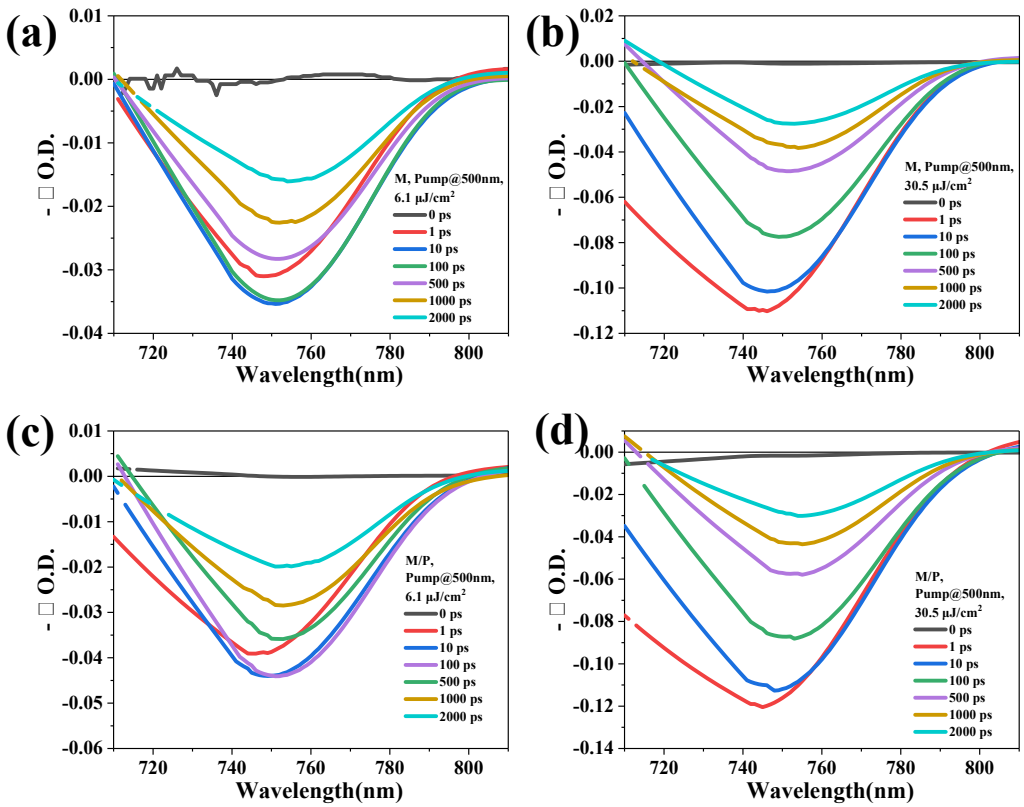

Figure S4. Transient absorption spectra of $MAPbI_3$, $MAPbI_3$/PMMA film pumped at 500 nm with fluence of 6.1 μJ/cm^2 (a, b) and 30.5 μJ/cm^2 (c, d), respectively.

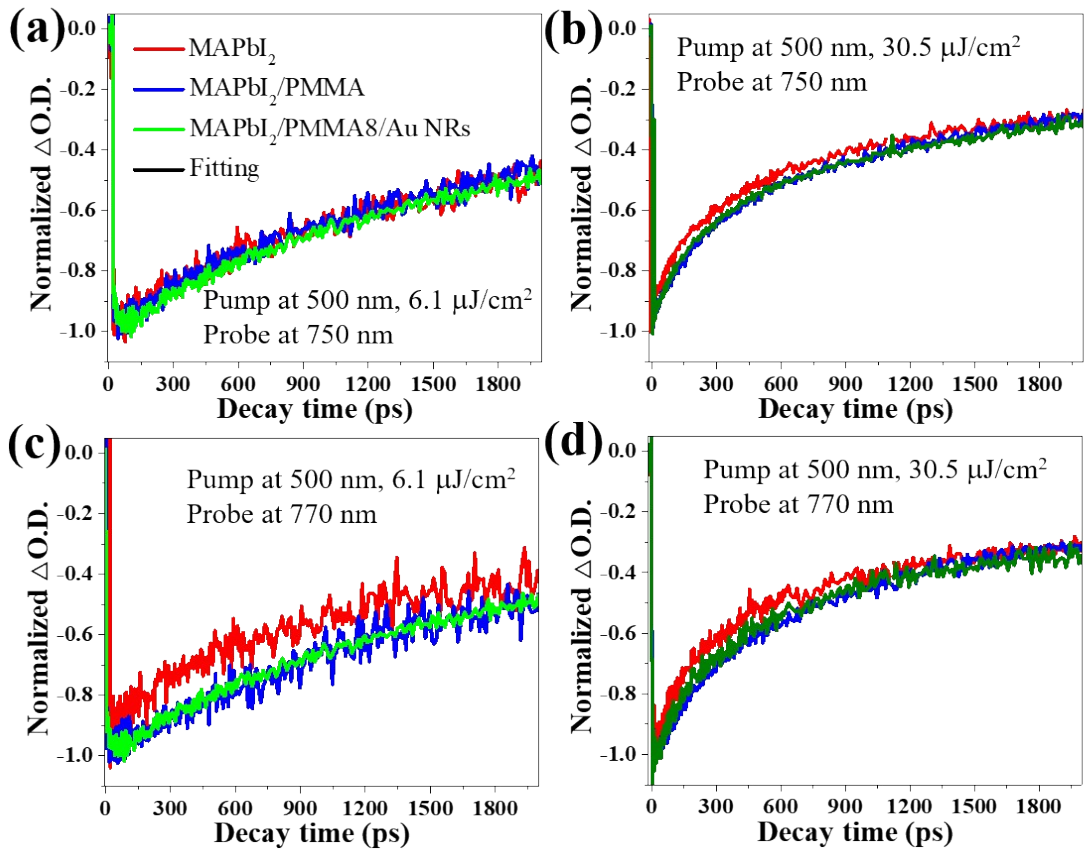

Figure S5. Pump-probe results of MAPbI3, MAPbI3/PMMA and MAPbI3/PMMA (thickness=8 nm)/Au NRs films