

## PLASMONIC EFFECT ON POLYMER SOLAR CELLS

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Surface plasmons (SPs), excited on a thin metallic/dielectric interface, have been utilized to enhance the efficiency of solar cells. In our previous work, firstly, we have demonstrated plasmonic effect in inverted tandem polymer solar cell configuration by blending Au nanoparticles (NPs) into the interconnection layer (ICL) which connects two sub-cells. Experimental results showed this plasmonic-ICL enhances both the top and bottom sub-cells efficiency simultaneously by the enhancement of optical absorption. The added Au nanoparticles did not cause degradation of the tandem cell electrical characteristics. As a result, as high as 20% of enhancement of power conversion efficiency (PCE) has been attained due to the light concentration by Au NPs via plasmonic near field enhancement. Simulated near-field distribution and experimentally enhanced Raman scattering support our results.