

# Plasmonic Conductors for Organic Solar Cells

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We have fabricated metal hole arrays (MHAs) on silver films with sub-wavelength hole sizes that show the enhanced optical transmission effect, and we have incorporated them as semi-transparent electrodes in organic solar cells based on a P3HT-PCBM blend. When the enhanced transmission peaks of the MHA (400 nm pitch) are matched to the blend absorption range, we observe increased light absorption in this region. Preliminary measurements show a 100% increase in the short-circuit current under illumination for the MHA-based solar cell with respect to a similar control device, which has the MHA-electrode replaced by a conventional indium-tin oxide contact.