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Photovoltaic Effect in a Composite involving the Nonconjugated Conductive Polymer, Poly(β -pinene) and C₆₀ ADITYA KUMAR PALTHI, ANANTHAKRISHNAN NARAYANAN, MRINAL THAKUR, Photonic Materials Research Laboratory, Auburn University, AL — Photovoltaic effect in a composite involving a nonconjugated conductive polymer, poly(β -pinene) and C₆₀ will be reported. The photovoltaic cell was fabricated using indium tin oxide coated glass as one electrode and aluminum as the other, with a poly(β -pinene)-C₆₀ composite film sandwiched between the electrodes. Nitrogen laser (emission at 325 nm) and illuminant white light bulbs (emission at 300-700nm) were used as the light sources and the photo-voltage produced was recorded for different light intensities. The photo-voltage produced had a linear dependence on the light intensity. About 100 mV was generated for an intensity of $\sim 4\text{mW/cm}^2$. Pristine poly(β -pinene) has a photoluminescence peak at 360 nm for excitation at 280 nm. As we have observed, this photoluminescence is quenched when C₆₀ is added to poly(β -pinene) to form the composite. Therefore, the observed photovoltaic effect appears to be a result of excited-state electron transfer from poly(β -pinene) to C₆₀.

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