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Incident Angle Dependence of Organic Solar Cells[1] VINCENT DEGEORGE, John Carroll University, BRENT VALLE, KENNETH SINGER, Case Western Reserve University — We have been recently studying the use of interference effects to enhance optical absorption in polymer photovoltaic cells. These interference effects are expected to be angle dependent. We measure here the angle dependent absorption and compare with numerical simulations. The cells used were P3HT/PCBM active layer, organic photovoltaic cells. The angular dependence of the cells' reflection was measured using an Ocean Optics light source and spectrophotometer and a precision rotary stage apparatus. The experimental results were compared to a Matlab simulation of the characteristic matrix problem. Analysis showed that the reflection/absorption peaks predicted by the simulation largely coincided in wavelength to those observed in experiment. Moreover, no additional cavity resonance can be attributed to incidence angle.

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