

Abstract Submitted
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Solution Studies of PCBM CHASE SHULDA, MARIAN TZOLOV,
Department of Physics, Lock Haven University — Polymer solar cell devices are becoming more prevalent topics of research due to their ease of development. The active layer of the bulk heterojunction solar cell is a mixture of a polymer and PCBM while they are mixed in a common solution. Upon fabricating polymer solar cells, it is imperative to create proper solutions of PCBM with the polymers. PCBM is a semiconductor that is required in order to accept the photogenerated electrons. It is soluble in organic solvents such as chlorobenzene (CB), dichlorobenzene (DCB), and toluene. Diiodooctane (DIO) was added frequently to the solution in order to improve the morphology of the bulk heterojunction. We have studied the optical absorption of solutions of PCBM in CB, DCB, and toluene with and without DIO using spectrophotometer Lambda 650. We have observed a difference in the absorption of PCBM in different solvents in the range around 760 nm. We will present an interpretation based on the known electronic structure of PCBM. Our results give some guidance of the solvents which would lead to a better mixture between PCBM and the photoactive polymer.

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