

Abstract Submitted
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Controlled Domain Swelling for Block Copolymer-Based Solar Cells ALISYN NEDOMA, RAJEEV DATTANI, JAMES BANNOCK, PAUL WESTACOTT, JOAO CABRAL, Imperial College London, CENTRE FOR PLASTIC ELECTRONICS COLLABORATION — Block copolymers seem ideally suited materials for solar cells because they self-assemble to form highly-ordered domains on the same length scale as the diffusion length of an exciton. Success has thus far been limited by the tendency of block copolymers to disorder at low loadings of fullerene; a consequence of Timmerman's Rule whereby preferential interactions between the fullerene and one block of the copolymer tend to destabilize the microstructure. We present a method for balancing the volumetric swelling of one block by swelling the other block with a commensurate amount of the homopolymer. This technique is demonstrated for a model polymer system and extended to a conjugated rod-coil block copolymer.

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