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Absorption Control of Organic Solar Cells under LED Light for High Efficiency Indoor Power System

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Abstract : Organic solar cells have high potential which enables these to absorb much weaker light than 1-sun in indoor environment. They also have several practical advantages, such as flexibility, cost-advantage, and semi-transparency that can have superiority in indoor solar energy harvesting. We investigate organic solar cells based on poly(3-hexylthiophene) (P3HT) and indene-C60 bisadduct (ICBA) for indoor application while Finite Difference Time Domain (FDTD) simulations were run to find the optimized structure. This may provide the highest short-circuit current density to acquire high efficiency under indoor illumination.

Keywords : indoor solar cells, indoor light harvesting, organic solar cells, P3HT:ICBA, renewable energy
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