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Influence of printing temperature on the efficiency of organic solar cells

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Today, one of the biggest challenges is the development of carbon-neutral energy technologies. Solar cells have been a frontrunner for eco-friendly energy conversion for a long time, but in search for better energy conversion and cheaper production, new materials and production techniques need to be put forward. Printable thin-film solar cells could lower production-cost by means of a high scale-up potential and an easier production process. They can also yield high efficiencies, are of lighter weight, flexible and semitransparent. This suggests a wide variety of possible applications, where silicon-solar cells seem to be less applicable. Controlling the temperature of the printing process could lead to better efficiencies and a deeper understanding of the polymer-structures dependence on temperature. Four different printing temperatures are studied and evaluated using UV-Vis, photoluminescence and AFM.

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