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「Water-based organic semiconductor nanoparticles dispersions for photovoltaic devices」

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Commonly, the active layers of organic photovoltaic devices (OPV) are deposited from solution-process techniques, using chlorinated and/or aromatic solvents, which have high toxicity for the humans and the environment. In this communication, I will present the recent achievements dedicated to development of environmentally-friendly strategy to fabricate OPV devices using water-based colloidal inks. By a fine control of the size and the morphology of the nanoparticles, high power conversion efficiencies have been achieved, up to 10%. This work shows that it is possible to achieve high performances devices from water-based inks by careful control of the nanoparticle and active layer morphology. It opens the route for more environmentally-friendly processes not only for organic photovoltaics but also for organic electronics in general.

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