

Solution-processed technologies for next generation photovoltaics

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The next generation of photovoltaics seeks to push the boundaries of both efficiency and cost-effectiveness through the use of flexible platforms and new materials. Solution-processed technologies, such as chemically synthesized dyes and semiconductor nanocrystals, offer an attractive route towards achieving these goals. Additionally, these materials are uniquely suited to benefit from photonic and optical engineering of their structures and properties. For example, the bandgap of inorganic nanocrystal films can be tuned via the quantum confinement effect for tailored spectral utilization, and nanophotonic light trapping techniques can be seamlessly integrated into devices employing both organic and inorganic materials. I will review recent progress in solution-processed solar materials technology with a focus on colloidal quantum dot photovoltaics.