

### Structure control of organized mesoporous TiO<sub>2</sub> films templated by graft copolymers for dye-sensitized solar cells

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Randomly microphase-separated graft copolymers have been self-reorganized so as to exhibit a micellar structure with excellent connectivity upon tuning the solvent affinity. These copolymers are used as a structure-directing agent for organized mesoporous TiO<sub>2</sub> films with no grain boundaries, leading to enhanced solar conversion efficiency of dye-sensitized solar cells. The solar cell performance was maximized at 4.6% when the film thickness was increased to 2.5 μm. We believe that this graft copolymer-directed approach introduces a new and simple route toward the synthesis of well-organized metal oxide films as an alternative to a conventional block copolymer-based template.