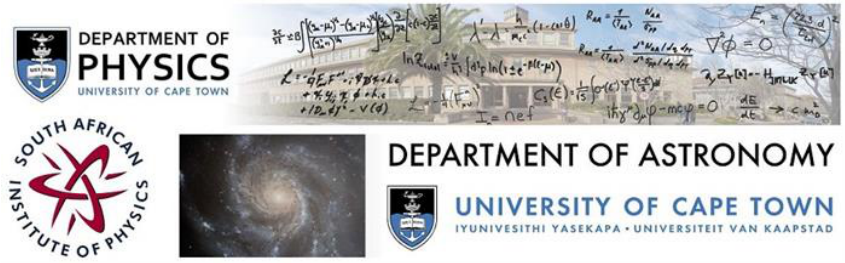

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Exceptionally Crystalline TiO2 Mesocrystals with Enhanced Light Harvesting Characteristics for solar energy conversion

Friday, 8 July 2016 09:40 (20 minutes)

Abstract content
   (Max 300 words)
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Titanium dioxide (TiO2) is one of the most abundant compounds in our planet. It is cheap, non-toxic, highly chemically and thermally stable semiconductor material. Titanium dioxide nanoparticles (TiO2-NPs) show high visible light transparency combined with high UV light absorption. However, altering the particle size and crystalline structure of TiO2-NPs influences the absorption range, adsorption of dye molecules and electron transfer rate at the surface. Unfortunately, TiO2-NPs suffer high electron/hole recombination rates. Therefore, an ordered superstructure consisting of nanoparticles on the scale of nanometers to several micrometers is proposed; titanium dioxide mesocrystals (TiO2-MCs).

In this work, we represent a new and facile way to fabricate TiO2-MCs with spherical structure by sol-gel metho

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