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# A dye-sensitized solar cell based on an in-situ hydrothermally grown hematite photo-anode

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## Abstract

Transition metal-oxides have gained research attention for applications in optoelectronics devices like dye-sensitized solar cells (DSSCs). This contribution presents an  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub>-Pt DSSC configuration. An in-situ hydrothermal technique was used to grow spherically shaped  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> thin films on an FTO substrate, forming the photo-anode. The surface morphology, structural, and optical properties were characterized by standard techniques, confirming the samples' purity. Pt was drop-cast on the FTO substrate, forming the counter electrode. The photo-anode was soaked in N719 ruthenium dye for 24 h. The

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