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**MODERN FUNCTIONAL  
MATERIALS**

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**PROCEEDINGS**



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**Optical and Morphological features of CeO<sub>2</sub> nanoparticles via facile co-precipitation method**

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**Abstract**

Rare-earth metal oxide cerium oxide (CeO<sub>2</sub>) nanomaterials were prepared by facile co-precipitation process. The structural, morphological and optical properties of the prepared CeO<sub>2</sub> samples are subjected to various characterization studies such as powder XRD, FTIR, SEM, TEM, UV and PL analysis. The powder XRD patterns showed the cubic fluorite phase of cerium oxide sample. The spherical-like morphology of CeO<sub>2</sub> nanoparticles are observed from the SEM and TEM analysis with average crystallite size range of 15 nm. The photocatalytic activities of the cerium oxide samples were examined using an Amido Black dye, it showed the effective rare-earth metal oxide photocatalyst.

**Keywords:** Rare-earth metal oxide; Cerium oxide; Nanomaterials; Co-precipitation process; Photocatalytic activities