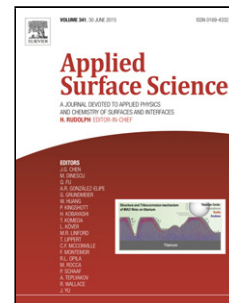


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Author: Jun Wang Chunxiang Huang Xianliu Chen Haitao
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Photocatalytic CO₂ reduction of BaCeO₃ with 4f configuration electrons

Jun Wang,^a Chunxiang Huang,^a Xianliu Chen,^a Haitao Zhang,^b Zhaosheng Li,^{a,*} Zhigang Zou^a

^aNational Laboratory of Solid State Microstructures, College of Engineering and Applied Sciences, and Jiangsu Key Laboratory of Nano Technology, Nanjing University, 22 Hankou Road, Nanjing 210093, People's Republic of China.

^bSchool of Chemistry and Chemical Engineering, University of Jinan, People's Republic of China.

*Corresponding author. E-mail addresses: zsli@nju.edu.cn

Abstract:

The perovskite-type photocatalyst BaCeO₃, prepared by a Pechini method, was investigated for CO₂ reduction under UV light irradiation. The prepared samples were characterized by X-ray diffraction, BET surface area measurement, UV-vis reflectance spectroscopy, scanning electron microscopy, and transmission electron microscopy, and the flat band potential was confirmed by Mott–Schottky measurements. The effects of various cocatalyst nanoparticles (Ag, Au, Pt, CuO, and RuO₂) on the photocatalytic activities of BaCeO₃ were also discussed. Among these cocatalysts, Ag nanoparticles exhibited the best performance for improving the photocatalytic activities of CO₂ reduction.

Keywords:

Photocatalytic CO₂ reduction, 4f electronic configuration, BaCeO₃, Cocatalyst

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