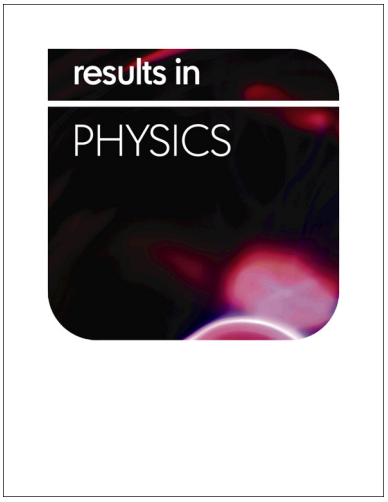

Microarticle

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Comparing the photocatalytic properties of g-C_3N_4 treated by thermal decomposition, solvothermal and protonation

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Abstract

The photocatalytic properties of the g-C_3N_4 obtained by the thermal decomposition (bulk g-C_3N_4), solvothermal (S-g-C_3N_4) and protonation (P-g-C_3N_4) method were compared by degrading MB in visible light. The photocatalytic activities of the bulk g-C_3N_4, the S-g-C_3N_4 and the P-g-C_3N_4 are 67.2%, 94.4% and 83.8%, respectively. It can be ascribed to the S-g-C_3N_4 and P-g-C_3N_4 had a nanosheets structure with micropores, the lower recombination rates of charge carriers, the better dispersion and the wider band gaps. Additionally, the excellent enhancement of the S-g-C_3N_4 was attributed to the fluffy nanosheets with pores, and the solvothermal treatment can better enlarge the band gap and improve the dispersion. These results showed that the photocatalytic activity of g-C_3N_4 can be improved effectively by the solvothermal treatment.

Key words: g-C_3N_4; Solvothermal; Protonation; Photocatalytic

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