Synthesis, structural and optical characterisation of Pr^{3+} doped $Zn_3(VO_4)_2$ for Photocatalytic application

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Abstract

In this research, $Zn_{(3-x)}Pr_x(VO_4)_2$ heterojunction for x = 0.00, 0.01, 0.03, and 0.05, has been fabricated using the solgel synthesis route, as mixed metal vanadate materials are considered an interesting class of semiconductors for photocatalysis due to their tunable properties of the bandgap for the light absorption in the visible range. The prepared heterojunction was analyzed by different characterization techniques: XRD, SEM, EDS, FTIR, UV–Vis, and PL for physicochemical attributes. The effect of Pr^{3+} substitution on structure, photoluminescence was observed. And also, Pr^{3+} concentration dependent photocatalytic activity evaluated.