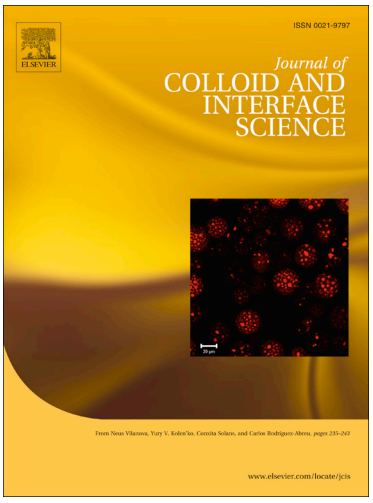

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ABSTRACT

Uniform Bi_2MoO_6 nanosheets were grown in a high dispersed fashion on electrospun $BiFeO_3$ nanofibers via a solvothermal technique. The loading amount of Bi_2MoO_6 in the $Bi_2MoO_6/BiFeO_3$ heterojunction nanofibers could be controlled by adjusting the precursor concentrations in the solvothermal process. The XPS analysis, energy band position calculation and trapping experiments all proved that the $Bi_2MoO_6/BiFeO_3$ heterojunction is a Z-scheme heterojunction. The Z-scheme $Bi_2MoO_6/BiFeO_3$ heterojunction had a much higher photocatalytic activity in the visible-light photodegradation of Rhodamine B (RhB) and tetracycline hydrochloride (TC) than pure $BiFeO_3$ nanofibers or pure Bi_2MoO_6 nanosheets. The enhanced photocatalytic activity was attributed to the formation of Z-scheme $Bi_2MoO_6/BiFeO_3$ heterojunctions, which could be beneficial to the separation of photogenerated electron-hole pairs. Moreover, the $Bi_2MoO_6/BiFeO_3$ heterojunction nanofibers could be easily separated under an external magnetic field via the ferromagnetic $BiFeO_3$. After several cycles, the photocatalytic activity of the $Bi_2MoO_6/BiFeO_3$ heterojunction no longer significantly decreased suggesting that the $Bi_2MoO_6/BiFeO_3$ heterojunction is stable.