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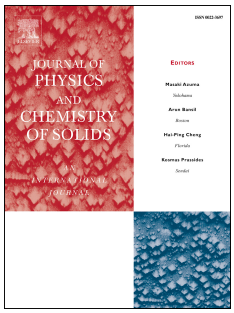

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Highly Flexible Fe_2O_3/TiO_2 Composite Nanofibers for Photocatalysis and Utraviolet Detection

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Highly flexible Fe_2O_3/TiO_2 composite nanofibers were successfully synthesized via electrospinning followed by high-temperature calcination. The morphologies and structures of Fe_2O_3/TiO_2 nanofibers were characterized by scanning electron microscopy (SEM), transmission electron microscopy (TEM), X-ray diffraction (XRD), and ultraviolet-visible (UV-Vis) spectroscopy, and their optical properties, photocatalysis and photodetection properties were also measured. The flexible nanofibers possess large specific surface area, and can be recycled by a magnet. Moreover, the absorption region has been extended from the UV region to the visible region, improving the performance of photocatalyst under visible light radiation. In addition, the formation of Fe_2O_3/TiO_2 heterostructures suppresses the recombination of photogenerated electron-hole pairs, which also improves the photocatalyst behavior. Particularly, these nanofibers can also work as a sensitive UV detector, which offers *in situ* monitor method of such photocatalysis materials.