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LaBO3 (B¼ Fe, Co) nanofibers and their structural, luminescence and gas sensing characteristics

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Abstract

Perovskite based oxides provide various compositional combinations between different oxides for tuning gas sensing performances. Herein, we present lanthanum based perovskites (LaFeO3 and LaCoO3) nanofibers (NFs) synthesized through the electrospinning method. Relative gas sensing performance of the two perovskites at a low operating temperature of 120 °C revealed that the LaFeO3 NFs based sensor exhibited high stable and selective response towards acetone with fast response and recovery time of 14 and 49 s. This high response was attributed to the high surface area and high density of oxygen related defects. The acetone sensing mechanism is also discussed.