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Fabrication and magnetic properties of $Co_{0.05}LaTi_{0.95}O_3$ nanofibers

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$Co_{0.05}LaTi_{0.95}O_3$ nanofibers with average diameter of 201 −264 nm have been successfully fabricated by electrospinning method. The crystal structure of nanofibers calcined at 400 −700 ^oC shows amorphous structure. The $Co_{0.05}LaTi_{0.95}O_3$ nanofibers calcined at 800 oC had cubic perovskite-type structure with secondary phase. The average crystallite sizes of nanofibers calculated from Scherrer's formula were found to be 8.6 nm. The nanofibers of $Co_{0.05}LaTi_{0.95}O_3$ calcined at 400 −600 ^oC exhibit diamagnetic properties. The sample of nanofibers calcined at 700 and 800 ^oC revealed room-temperature ferromagnetism behavior with the highest magnetization of 2.6 emu/g observed in the sample calcined at 800 ^oC. It was found that the magnetization value increased with increasing calcination temperature.

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