Abstract Submitted
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Thermoelectrical and Structural Properties of Sintered $LaCoO_3$ Ceramics[1] A. CORTES, W. LOPERA, Thin Film Group Department of Physics, Universidad del Valle, Cali, Colombia, P. PRIETO, Excellence Center for Novel Materials — Electrical and thermal transport properties of $LaCoO_3$ in bulk are reported in the temperature range from 10 to 390 K. The crystalline structure of the samples was determined by x-ray diffractometry (XRD). XRD measurements indicated that the formation of $LaCoO_3$ was completed, and it was verified that a pure phase with rhombohedral crystalline structure was obtained. The results of the thermoelectric measurements show that the Seebeck coefficient (S) initially grow with the increasing of temperature up to a maximum value around of 650 μV/K at 230 K. After this temperature S decrease slowly up to a value of 520 μV/K, at room temperature. The polycrystalline $LaCoO_3$ samples show thermal conductivity around 0.4 W/mK at room temperature, that is a lower value than the reported for single crystal samples of this material. Electrical resistivity measurements show typical semiconducting behavior, with a large value of resistivity, close to 2.6 Ωcm. Finally the thermoelectric figure of merit have a maximum value of 0.09, at room temperature, that is comparable to previous reported values for this material.

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Pedro Prieto
Department of Physics, Universidad del Valle, Cali, Colombia

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