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Magnetic and structural properties of $CaMn_{0.9}Mo_{0.1}O_3$ perovskite synthesized in abnormal glow discharge ARMANDO SARMIENTO SANTOS, CARLOS ARTURO PARRA VARGAS, IVAN SUPELANO GARCÍA, GSEC-Universidad Pedagógica y Tecnológica de Colombia — In this work we use the abnormal glow discharge (AGD) to produce the $CaMn_{0.9}Mo_{0.1}O_3$ perovskite through decarbonize, calcination and sintering steps. Structural characterization was carry out by Rietveld refinement of X-ray diffraction on samples after sintering step. The magnetic properties was analysed through magnetization curves as a function of temperature for applied magnetic fields in the range of 20 Oe to 20 kOe by the ZFC-FC method and magnetization curves in function of the applied field at 50 K and 300 K temperatures. The $CaMn_{0.9}Mo_{0.1}O_3$ perovskite was also produced by conventional method in resistive furnace and its behaviour was compared with those of the plasma synthesized. The X-ray analysis reveals that the samples produced by both methods crystalized in a Pnma structure, the lattice parameters change and one second phase appears when the AGD is applied in the last production steps. The magnetization measurements allow analysing the behaviour of the sample at low temperatures and comparing the magnetic transitions in the samples produced by both methods; these are influenced according to production method employed. The results shows that the use of AGD is an alternative method to produce ceramic materials, which reduced ostensibly the production time and allow to obtain similar magnetic and structural properties with respect to conventional method.

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