

Electric, dielectric and microstructural properties of h-BaTiO₃ and CoFe₂O₄ composites prepared by LHPG technique

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Composite fibers of the 0.8BaTiO₃-0.2CoFe₂O₄ system were grown by Laser-Heated Pedestal Growth (LHPG) technique. The nutrient and seed used during growth were polycrystalline sintered rods obtained from the mixing of barium titanate and cobalt ferrite powders. X-ray diffraction analysis and scanning electronic microscopy were performed in order to determine compositional, structural and morphological characteristics of the fibers. A lamellar structure was observed, which presented the hexagonal BaTiO₃ and the spinel-type CoFe₂O₄ phases. Investigation of electric and dielectric properties was carried out for the perpendicular and parallel sample cuts respective to the growth axis. Dielectric anomalies, particularly at low temperatures, and the overall characteristics of the material were found to be strongly dependent on the cut direction and the growth speed..