Poster Sessions

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Structural characterization of a new series of (Gd,R)-cuprate. (R=Rare Earth)

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Great advances have been made in achieving superconductivity at high temperatures. Superconductivity up to 120 K has been found in TiBa₂Ca₂Cu₃Oₓ (R = Gd, Dy, Ho) mixing the appropriate stoichiometric amounts of reactants for perform a conventional solid state reaction. The synthesis was nearly followed by X-ray diffraction, in order to reach the best conditions for synthesis. To observe the thermal stability, a combination of Thermo-Gravimetric Analysis (TGA) and Differential Scanning Calorimetry (DSC) were carried out. The characterization was completed by the study of morphology by Scanning Electron Microscopy (SEM) and chemical analysis by Electron Dispersive X-Ray Spectroscopy (EDX).


Keywords: x-rd, synthesis, rare-earth

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Deposit of ZnO films by SS-CVD to atmospheric pressure

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ZnO films were deposited on glass substrates at different deposition temperatures (250–400 °C in steps of 50 °C) at atmospheric pressure. The structural properties were investigated by X-ray diffraction (XRD) and atomic force microscopy (AFM). Low temperature deposition is provided by SS-CVD system, this characteristic generate high deposition rate which facilitate the ZnO films formation. X-ray diffraction indicates that all deposited films were polycrystalline. The films deposited shown a prefered orientation depending of the substrate temperature. This feature determines the shape of the structure of the ZnO films. The lattice parameter strain decrease in the ZnO films by the increase of the deposition temperatures. The texture coefficient for (002) plane is 2.25. Our samples showed a transmittance in the range of 75 % to 90% in the visible region.

Keywords: CVD, zinc oxide, X-ray

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Synthesis and structural characterization on RESmnO₃. (RE=Rare Earth) system

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Synthesis of a new series of RESmnO₃. (RE=Rare Earth) has been carried out. This system of compounds represents an interest on the material due to its high density and its magnetic properties. The reaction was carried out by single source chemical vapor deposition method (SS-CVD). The best conditions were obtained using iron metal as precursor material at 650 °C and in flowing Argon gas. X-ray diffraction and SEM were used to characterize the obtained materials. The obtained materials were grow on glass substrates at different temperatures and pressures. The structural properties were investigated by X-ray diffraction (XRD) and atomic force microscopy (AFM). Low temperature deposition is provided by SS-CVD system, this characteristic generate high deposition rate which facilitate the ZnO films formation. X-ray diffraction indicates that all deposited films were polycrystalline. The films deposited shown a prefered orientation depending of the substrate temperature. This feature determines the shape of the structure of the ZnO films. The lattice parameter strain decrease in the ZnO films by the increase of the deposition temperatures. The texture coefficient for (002) plane is 2.25. Our samples showed a transmittance in the range of 75 % to 90% in the visible region.

Keywords: CVD, zinc oxide, X-ray