SAIP2025



Contribution ID: 396

Type: Poster Presentation

Effect of Temperature on Structural and Optical Properties of Sm2O3

Metal oxides are very popular because of their irreplaceable properties. In recent times, these metal oxides are used in several areas and particularly a number of research activities have been undertaken to explore rare-earth metal oxides. A series of rare-earth-based compounds are extensively used in several grounds of current science and technology as a result of their unusual optical, magnetic, electrical and catalytic properties ascending from their distinctive 4 <i>f</i> electrons. Samarium oxide (Sm₂O₃) amongst other rare-earth metal oxides is one of the promising rare-earth oxide functional materials due to its high electrical resistivity, high dielectric constant, energy gap, better chemical and thermal stability. This work focuses on the synthesis of Sm₂O₃ sample which has synthesized and calcined at 500 and 700 °C. These are followed by structural, morphological and optical properties analysis. The structural analysis through x-ray diffraction (XRD) confirmed that the compounds crystallizes in a cubic structure with lattice parameter, a, is 10.94 Å. The optical and surface morphology results are found to corroborate the crystal growth at two different temperatures.

Apply for student award at which level:

None

Consent on use of personal information: Abstract Submission

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Session Classification: Poster Session

Track Classification: Track A - Physics of Condensed Matter and Materials