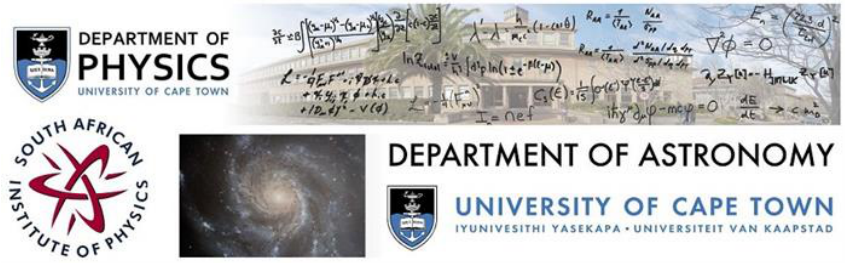

Contribution ID: **57** Type: **Poster Presentation**

Thermoluminescence investigation of Sm³⁺ activated NaSrBO₃ phosphors for gamma dosimetry.

Tuesday, 5 July 2016 16:10 (1h 50m)

Abstract content
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Thermoluminescence characteristics of Sm³⁺ activated NaSrBO₃ phosphors synthesized by solid state method and combustion method have been studied. The phosphors were investigated for their crystal structure using powder X-ray diffraction. A Thermoluminescence (TL) study was carried out after exposing the samples to γ-radiation in the range of 0.01-5 kGy. The TL glow curves exhibited a prominent peak at a lower temperature 402 K and a small hump at 466 K for the samples synthesized by combustion method whereas the glow peaks position shifted towards higher temperature for the samples synthesized by solid state method. The intensity of the peaks raised with the increase in the dose of the gamma rays (0.01–5 kGy). The TL intensity has also improved when synthesis by combustion method. The phosphors exhibited sublinear TL response to gamma-radiation over a wide range of gamma doses (0.01–5 kGy). To analyze the glow curves the TLanal program was used at different doses (0.2–5 kGy). In addition to this, the trapping parameters of all the samples were also calculated using Chen's peak shape method.

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Session Classification: Poster Session (1)

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