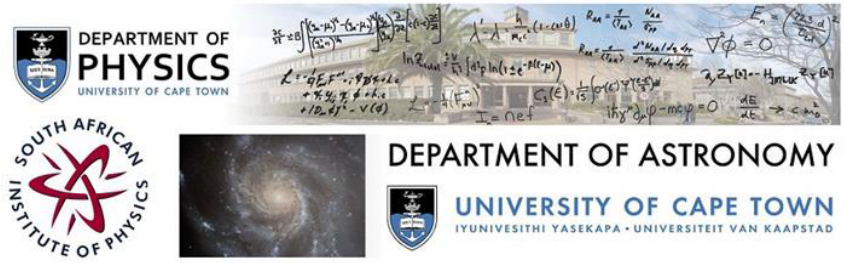

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Pulsed laser deposited KY3F10:Ho3+ phosphor thin films

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

Abstract content
   (Max 300 words)
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Thin films of KY_3 F_10:Hoˆ(3+)phosphor have been successfully prepared by pulsed laser deposition on (100) silicon substrate. The effect of high and low deposition pressures on the structural, morphological and luminescence properties of the films were investigated. The X-ray diffraction (XRD) results show that the films crystallized in tetragonal polycrystalline phase of KY_3 F_10 (in agreement with JCPDS card No 27-0465). Field Emission Scanning Electron Microscope (FE-SEM) and Atomic Force Microscope (AFM) results show clear grains of the deposited films. The EDS elemental mapping result shows Yttrium excess. The thickness of the films was estimated using a weight difference method employing a sensitive electronic microbalance. Green PL emission at 540nm was investigated at four excitation wavelengths; namely, 362, 416 and 454 and 486nm. The highest PL intensity occurred at excitation of 454nm. In addition, red emission was observed at 650 and 750nm for all the excitations. The green emission at 540 nm is ascribed to the 5F4–5I8 and 5S2–5I8 transitions, the red emission at 750 nm are due to the 5F4 –5I7 and 5S2–5I7 transitions of Hoˆ(3+).

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