Contribution ID: **251** Type: **Poster Presentation**

Measuring the optical thermometry properties of a phosphor

Wednesday, 1 July 2015 16:10 (1h 50m)

Abstract content
   (Max 300 words)
Formatting &
Special chars

This study is focused on the investigation and measurement of optical thermometry properties of different phosphors by utilising the Photoluminescence (PL) technique. After a literature study it was concluded that the optical thermometry properties of phosphors can be measured by two techniques. Firstly the fluorescence intensity ratio technique, where fluorescence spectra of a phosphor is obtained and the intensity ratio between two thermally coupled levels are monitored as a function of temperature. The second technique is where an excited phosphor's fluorescence peaks are monitored as relaxation takes place. The fluorescence half-life of the phosphor is determined as a function of temperature. Currently the PL system in the Physics department at the University of the Free State is capable of measuring fluorescence spectra of a phosphor at room temperature and thus the aim of this study is to enhance the current system to investigate and measure the optical thermometry properties of different phosphors at different temperatures by using both these techniques. The preliminary results obtained and the custom build system will be discussed in detail.

Apply to be
 considered for a student
   award (Yes / No)?

Yes

Level for award
 (Hons, MSc,
   PhD, N/A)?

MSc

Main supervisor (name and email)
and his / her institution

Hendrik Swart, SwartHC@ufs.ac.za, University of the Free State

Would you like to <br> submit a short paper <br> for the Conference
 Proceedings (Yes / No)?

Yes

Please indicate whether
this abstract may be
published online
(Yes / No)

Yes

Primary author: Mr ERASMUS, Lucas (University of the Free State)

Co-authors: Prof. SWART, Hendrik (University of the Free State); Prof. TERBLANS, JJ (Koos) (UFS)

Presenter: Mr ERASMUS, Lucas (University of the Free State)

Session Classification: Poster2

Track Classification: Track F - Applied Physics