



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA



Nelson Mandela
Metropolitan
University
for tomorrow

UNIVERSITY OF THE
FREE STATE
UNIVERSITEIT VAN DIE
VRYSSTAAT
YUNIBESITHI YA
FREISATA



UFS·UV
NATURAL AND
AGRICULTURAL SCIENCES
NATUUR- EN
LANDBOUWETENSKAPPE

Contribution ID: 45

Type: Oral Presentations

XPS investigation of the photon degradation of Znq2 green organic phosphor.

Thursday, 7 May 2015 15:40 (20 minutes)

Although tris-(8-hydroxyquinoline) aluminium (Alq3) is used as a green emissive layer in organic light emitting diodes (OLED) it tends to degrade with time leading to a decrease in device performance and efficiency. It has been reported that by substituting Al with Zn to form bis-(8-hydroxyquinoline) zinc (Znq2), the Znq2 shows advantages over the Alq3 in electron transport and higher quantum yields in device performance which would result in lower operating voltages.

There is a two fold increase in the photoluminescence intensity of Znq2 compared to that of Alq3. Znq2 powder was irradiated with an UV source for 400 hours and the intensity vs time was monitored. From the N1s and O1s high resolution XPS peaks, it can be seen that the pyridyl ring stayed intact during degradation, but that the phenoxide ring ruptured and formed new bonds like C=O and C-OH.

Are you currently a postgraduate student? (Yes/No)

No

Please provide the name and email address of your supervisor.

Prof HC Swart swarthc@ufs.ac.za

Primary author: Dr DUVENHAGE, Mart-Mari (University of the Free State)

Co-authors: Prof. SWART, Hendrik (University of the Free State); Prof. NTWAEABORWA, Martin (University of the Free State)

Presenter: Dr DUVENHAGE, Mart-Mari (University of the Free State)

Session Classification: Presentations

Track Classification: SACPM