Contribution ID: **499** Type: **Oral Presentation**

Generation of High Order Modes

Wednesday, 11 July 2012 11:15 (20 minutes)

Abstract content
   (Max 300 words)

This work deals with the generation of symmetrical high order Laguerre Gaussian modes. These high order Laguerre-Gaussian beams are generated by forcing the laser using an annular binary Diffractive Optical Element whose geometry is in connection with the location of the Laguerre polynomial zeros. The Diffractive optical element is used to shape the TEM00 Gassian beam and force the laser to operate on a higher order TEMp0 Laguerre-Gaussian modes or high order superposition of Laguerre-Gaussian modes. In this presentation we will show some different methods that we have employed for generating these high order Laguerre Gaussian modes using annular binary Diffractive Optical Elements of multi rings and single ring method. The characterization of these high order Laguerre Gaussian modes using Fourier Transformation, Modal Decomposition Method and Beam quality factor M2 measurements will show that they are of high purity.

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

Yes

Level for award
 (Hons, MSc,
   PhD)?

PhD

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

Prof. Andrew Forbes

aforbes@csir.co.za

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

No

Primary author: Mr NGCOBO, Sandile (CSIR)

Co-authors: Prof. FORBES, Andrew (CSIR); Prof. AIT-AMEUR, Kamel (ENSICAEN)

Presenter: Mr NGCOBO, Sandile (CSIR)

Session Classification: Photonics

Track Classification: Track C - Photonics