Contribution ID: **16** Type: **Oral Presentation**

Creating and decomposing vector Bessel beams

Tuesday, 9 July 2013 10:30 (20 minutes)

Abstract content
   (Max 300 words)

We show how to generate non-diffracting vector Bessel beams by implementing a spatial light modulator (SLM) and a q-plate, which is an azimuthally-varying birefringent plate. The SLM first creates the scalar Bessel beams which are then converted into vector Bessel beams by the use of the q-plate. We demonstrate how the orbital angular momentum (OAM) of these generated beams can be measured by performing a modal decomposition on each of the beam's polarization components. This is achieved by separating the polarization components through a circular polarization beam-splitter before performing the modal decomposition. We study both single charged Bessel beams as well as superpositions and the results are in good agreement with theory.

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

No

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

Prof. Andrew Forbes, AForbes1@csir.co.za, CSIR National Laser Centre

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

No

Primary author: Dr DUDLEY, Angela (CSIR National Laser Centre)

Co-authors: Prof. FORBES, Andrew (CSIR National Laser Centre); Prof. ESCUTI, Michael (Department of Electrical and Computer Engineering, North Carolina State University, Rayleigh, North Carolina 27695, USA); Ms MHLANGA, Thandeka (CSIR National Laser Centre); Ms LI, Yanming (Department of Electrical and Computer Engineering, North Carolina State University, Rayleigh, North Carolina 27695, USA)

Presenter: Dr DUDLEY, Angela (CSIR National Laser Centre)

Session Classification: Photonics

Track Classification: Track C - Photonics