Contribution ID: **79** Type: **Oral Presentation**

A coaxial superposition of coherent Gaussian beams

Tuesday, 9 July 2013 10:50 (20 minutes)

Abstract content
   (Max 300 words)

We explore an interferometric beam shaping technique that considers the coaxial superposition of two Gaussian beams. This technique is traditionally implemented in a Mach-Zehnder interferometer; however, to avoid phase shift drift due to vibrations and thermal effects we employ amplitude and phase modulation with an SLM to achieve the beam shaping. We consider two Gaussian beams of equal but opposite curvature that possess the same phase and width incident on a focusing lens. At the plane of the lens we obtain a multi-ringed beam with a central intensity maximum which develops into a multi-ringed beam with a central null at the focal plane of the lens. The interesting feature of this beam is that is possesses two focal spots on either side of the plane of the focal position of the lens. We investigate the possibility of longitudinal optical trapping at the two focal spots with an obstruction positioned at the focal plane of the lens.

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

Yes

Level for award
 (Hons, MSc,
   PhD)?

PhD

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

Andrew Forbes, aforbes1@csir.co.za
CSIR, University of Stellenbosch

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

No

Primary author: Mr NAIDOO, Darryl (Council for Scientific and Industrial Research)

Co-authors: Prof. FORBES, Andrew (Council for Scientific and Industrial Research); Prof. AIT-AMEUR, Kamel (Centre de Recherche sur les Ions, les Matériaux et la Photonique); Dr FROMAGER, Michael (Centre de Recherche sur les Ions, les Matériaux et la Photonique); Dr GODIN, Thomas (Institut FEMTO-ST)

Presenter: Mr NAIDOO, Darryl (Council for Scientific and Industrial Research)

Session Classification: Photonics

Track Classification: Track C - Photonics