



Contribution ID: 441

Type: Poster Presentation

Digitally transforming high-order mode to a high brightness beam

Wednesday, 6 July 2016 16:10 (1h 50m)

Abstract content (Max 300 words) **Formatting & Special chars**

In this paper we demonstrate the superresolution technique of transforming a pure high order LGpl or HGml modes into a Gaussian intensity distribution at the plane of a converging lens. The high order modes are generated by encoding a digital amplitude hologram mask that contains absorbing rings match the Laguerre polynomial p and l zeros or the Hermite polynomial m and l zeros on a spatial light modulator (SLM) that acts as end-mirror of the resonator. The transformation is achieved by encoding an annular binary diffractive optical element on a second SLM as a digital hologram with a transmittance that has $+1$ or -1 which coincide with the dark and bright parts of the incident beams. It is envisaged that the transformed beam at the focus of the lens will have a focal volume and a profile that is similar to a Gaussian beam.

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No

Primary author: Mr NGCOBO, Sandile (CSIR)

Co-author: Mr BELL, Teboho July (CSIR)

Presenter: Mr NGCOBO, Sandile (CSIR)

Session Classification: Poster Session (2)

Track Classification: Track C - Photonics