

Contribution ID: 197

Type: Oral Presentation

Decomposition of the field within an apertured plano-concave resonator

Wednesday, 13 July 2011 11:15 (15 minutes)

<P>A method of experimentally decomposing a field within an apertured plano-concave resonator cavity into a forward propagating field (plane to concave) and a backward propagating field (concave to plane) is presented. The use of an intra-cavity aperture which is a simple method of laser beam shaping is a means of mode selection as higher-order modes are actively discriminated. This apertured cavity is modelled by two fundamental resonator theories, namely, Fox-Li analysis and Laguerre-Gaussian decomposition where they are used in the determination of the respective beam profiles at a specific plane. These theories traditionally differ from one another for an apertured cavity where the Gaussian beam within the cavity is truncated. A preliminary set-up is characterized for Gaussian propagation in an attempt to verify that the cavity is viable and accurate. A comparison of experimental data with the theories is presented.

Level (Hons, MSc,
 PhD, other)?

MSc

Consider for a student
 award (Yes / No)?

Yes

Would you like to
 submit a short paper
 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. AÏT-AMEUR, Kamel (CIMAP–ENSICAEN)

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

Session Classification: LOS

Track Classification: Track C - Lasers, Optics and Spectroscopy