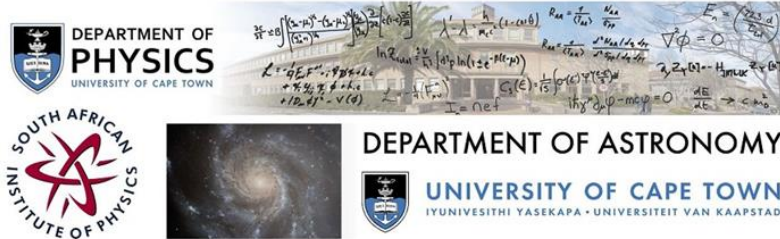# SAIP2016

Contribution ID : 263
The Wigner distribution function in modal characterisation
Wednesday 06 Jul 2016 at 16:10 (01h50')

Abstract :

We investigate a novel approach to characterise an optical field employing a Wigner distribution function with a modal decomposition technique. Optical fields are typically characterised through their phase, beam size, far field beam divergence, beam quality and constituent modal components where a variety of measurement techniques are required to obtain the above parameters. These techniques include a modal decomposition that uses a superposition of orthogonal functions to determine constituent modal components and a knife-edge method to determine beam size by the use of a scanning slit and a detector. The use of the Wigner distribution function together with the modal decomposition is an approach to optimally obtain the various beam parameters in a single set of measurements. We demonstrate a mathematical representation of the approach and highlight the experimental procedure in modal characterisation.

Award :

Yes
Level :

Msc
Supervisor :

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Paper :

No
Permission :

No

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Presenter : Mr. MREDLANA, Prince (CSIR National laser centre)
Session classification : Poster Session (2)
Track classification : Track C - Photonics
Type : Poster Presentation