

NEXT LITE-SEMINAR

Manipulating and measuring modes in multimode fibre

Joel Carpenter, School of IT & Electrical Engineering (ITEE), The University of Queensland, Australia

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Gußhausstraße 27-29, 1040 Vienna,
Seminar room CBEG02, ground floor.

Host: S. Rotter

Abstract

Advances in the measurement and manipulation of light's spatiotemporal properties are overcoming many of the practical difficulties which have traditionally limited the applications of multimode optical fiber. Applications such as mode division multiplexing (MDM) exploit fiber modes to increase transmission capacity for telecommunications, while biomedical imaging is employing multimode fibre to create endoscopes at the theoretical limits of compactness. These new techniques require multimode fibre propagation to be characterized and controlled with a level of detail not previously available and in doing so, it is also yielding insights into the fundamentals of fibre optics itself. For example by the observation of well-known, but previously unobserved phenomena such as principal modes.

A short bio

Joel Carpenter received his PhD in Electrical Engineering from the University of Cambridge, UK in 2012 for his work on Mode Division Multiplexing in optical telecommunications before working as a postdoctoral researcher at The University of Sydney, Australia. He is now a faculty member at his alma mater, The University of Queensland. His research focuses on the measurement and manipulation of fibre modes using spatial light modulators and computational holography.

www.youtube.com/user/joelacarpenter