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Kishan Dholakia is Professor at the University of St Andrews, Scotland. He works on advanced imaging, beam shaping and optical manipulation. He has published over 295 journal papers and has in excess of 24,000 citations. His work is cited in the Guinness book of Records 2015. He is a Fellow of the Royal Society of Edinburgh, the Optical Society (OSA) and SPIE. In 2016 he won the R.W. Wood Prize of the Optical Society, in 2017 he won the IOP Thomas Young Medal and Prize and is the 2018 recipient of the SPIE Dennis Gabor Award.

ABSTRACT

Wider, Faster, Deeper: New directions for wide field imaging

Optical imaging has seen exceptional advances in the last two decades. In this talk I will describe routes for obtaining wide field images that minimise photodamage and enable deeper penetration into tissue. The particular mode of imaging I will describe is light sheet microscopy using propagation invariant light fields, particularly Airy beams. I will describe the advantages of this field for obtaining wide fields of view and also the new use of attenuation compensated propagation invariant fields for deeper penetration. A further approach using temporal focusing for multiphoton imaging at depth will be described.