

*Weldon School of Biomedical Engineering
Special Seminar*

Wednesday, March 30, 2022

10:30 am – 11:20 am

MRGN 211 or Via Zoom:

<https://purdue-edu.zoom.us/j/97722569531>

**“Adaptive optics for high-resolution microscopy and fabrication:
going faster, smaller and deeper”**



Martin Booth, PhD

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University of Oxford

Abstract: I will review recent work on using dynamic optical elements, such as deformable mirrors and spatial light modulators, to increase the capabilities of laser micro fabrication and optical microscopy. In particular, I will show how adaptive aberration correction and dynamic parallelisation can improve precision and reliability and increase the accessible volume and speed of these systems. Applications of our laser writing technology range from quantum optics, through radiation sensing to security marking of diamond gemstones. Our imaging methods include applications in cell biology, neuroscience and super-resolution microscopy.

Bio: Prof Booth is Professor of Engineering Science at the University of Oxford. His research group is based in the Department of Engineering Science and has many collaborations in other departments across Oxford. His research involves the development and application of adaptive optical methods in microscopy, laser-based materials processing and biomedical science. He has held Royal Academy of Engineering and EPSRC Research Fellowships and in 2016 received an Advanced Grant from the European Research Council. He was appointed Professor of Engineering Science in 2014. In 2012 Prof Booth was awarded the “Young Researcher Award in Optical Technologies” from the Erlangen School of Advanced Optical Technologies at the University of Erlangen-Nürnberg, Germany, and a visiting professorship at the university. In 2014 he was awarded the International Commission for Optics Prize. He has over 150 publications in peer-reviewed journals, over 25 patents, and has co-founded two spin-off companies, Aurox Ltd and Opsydia Ltd.