



Special Issue on Optics and Photonics *University of Oxford*

1. Subject

Special Issue on Optics and Photonics at the University of Oxford

2. Submission Deadline: 30 June 2024

3. Illustration

This feature issue is to highlight exciting research in optics and photonics conducted at the University of Oxford, spanning the full spectrum from fundamental research in optics to device engineering and system integration.

4. Brief introduction of University of Oxford:

The University of Oxford is a collegiate research university in Oxford, England. There is evidence of teaching as early as 1096, making it the oldest university in the English-speaking world and the world's second-oldest university in continuous operation.

The University of Oxford covers a diverse range of expertise in optics and photonics and supports a vibrant photonics community in which to study and work. For over ten years, this research community has been brought together through the Oxford Optics and Photonics Network. Research in this field spans many different themes ranging from quantum photonics and metrology to super-resolution optical imaging, biophotonics, ultrafast spectroscopy, sensing, optoelectronic devices, and laser processing. Research in these areas takes place across many departments including Biology, Chemistry, Engineering, Materials, and Physics, as well as in the University's Medical Sciences Division.

5. The types of invited papers

Research Article/Review/Perspective

6. Topics

Particular interests within the Featured Issue's scope include, but are not limited to, those listed below:

- Biophotonics and Medical Optics
- Integrated and Optoelectronics Devices

- Lasers and Laser Optics
- Micro- and Nano-photonics
- Nonlinear Optics and Ultrafast Optics
- Optical Imaging and Displays
- Optical Materials, Metamaterials and Photonic Crystals
- Optical Communications and Fiber Optics
- Quantum Optics and Quantum Information
- Solar Cells and Related technologies
- Vectorial Optics and Photonics

7. Co Guest Editors-in-Chief



1, Prof. Martin Booth

University of Oxford, UK

Prof. Booth is Professor of Engineering Science at the University of 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 170 publications in peer-reviewed journals, and over 25 patents, and has co-founded two spin-off companies, Aurox Ltd and Opsydia Ltd. He is now Deputy Head of Department, Chair of Optical and Photonic Engineering, and also a Fellow of Optica (formerly known as OSA), the Society of Photo-optical Instrumentation Engineers (SPIE), and the Institute of Physics (IOP).



2, Prof. Stephen Morris

University of Oxford, UK

Prof. Morris is a Professor of Engineering Science in the Department of Engineering Science at the University of Oxford and a Tutorial Fellow at Jesus College. Together with Prof. Steve Elston, he runs the Soft Matter Photonics Research Group, which carries out research on a wide range of optoelectronic technologies based upon soft materials such as liquid crystals and polymers. Stephen has published more than 120 papers in peer-reviewed journals and authored/co-authored five book chapters and filed 10 patents. Stephen is currently the Chair of the Oxford Photonics Network Committee and a member of the Steering Committee of the Space@Oxford Network. He is the Academic Director of the Technology and AI programme that is run by the Department for Continuing Education and an Associate Editor of *Optical Materials*. He has previously held a Royal Society University Research Fellowship.



3, Dr. Chao He

University of Oxford, UK

Dr. Chao He is a Lecturer, Principal Investigator, and doctoral supervisor at the University of Oxford. He runs the Vectorial Optics and Photonics Group, which focuses on optical techniques for vectorial beam manipulation, including structured light, structured matter, adaptive optics, and polarization sensing. He completed his DPhil degree in the Department of Engineering Science at the University of Oxford from 2018-2020 (within two years) and was later elected as a Junior Research Fellow in Engineering at St John's College (1st place among all candidates). He is in the Governing Body of St John's College. He has published over 60 scientific papers, including first- and corresponding-authored papers in *Light: Science & Applications*, *Nature Communications*, *Optica*, *Advanced Photonics*, *elight*, etc., and serves as a reviewer of *Nature Photonics*, *Light: Science & Applications*, *Nature Communications*, *Optica*, etc., and as an Editorial Board member *Journal of Optics*, *Light: Advanced Manufacturing*, etc. He independently leads several research grants, whose overall value exceeds £1 million.



4, Prof. Harish Bhaskaran

University of Oxford, UK

Prof. Bhaskaran is a Professor of Advanced Nanomaterials at the University of Oxford, Fellow of the Royal Academy of Engineering (FREng), Fellow of the Institution of Mechanical Engineers, Fellow of Higher Education Academy. He joined the faculty of University of Oxford in January 2013. Just prior to joining Oxford, he was a Senior Lecturer in Engineering at the University of Exeter. He was also at IBM Research (Zurich) (2006-2009) and at Yale University (2009-2010). He has held two EPSRC Fellowships in Manufacturing and is the recipient of the Ovshinsky Lectureship Award for his contributions to neuromorphic computing and photonic devices in 2022. He is a world-leader in neuromorphic photonic computing and nanomanufacturing. His research led to the commercialisation of conductive AFM tips (IBM/Nanosensors). He also co-founded Bodle Technologies, to commercialise non-emissive displays, as well as Saliency Labs in the field of photonic hardware for AI. He is a prolific inventor and pioneer in the fields of neuromorphic photonics, NEMS and sustainable nanomanufacturing. At Oxford he is the Associate Head for Research of the Mathematical Physical and Life Sciences division, and serves on the Ethical Investments Representative subcommittee.