

# KISHAN DHOLAKIA

Australian Research Council (ARC) Laureate Fellow and Director of the Centre of Light for Life; Professor of Physics at the University of Adelaide Australia and University of St Andrews, UK.

## Education

- Imperial College, London, PhD in Laser Physics (laser cooling and trapping of ions)
- Imperial College, London, M.Sc. (with distinction) in Applied Optics
- Churchill College, Cambridge University, B.A. (Natural Sciences, Physics)

## Technical Activities/Interests

Optical micromanipulation, Optical tweezers; Biophotonics: studies of imaging, cell manipulation and nanosurgery; Precision measurement with levitated optomechanics and laser speckle.

## Service to Technical Community

- 2023-2030* Node Leader for the ARC Centre of Excellence on Breakthrough Science with Frequency Combs
- 2023-current* Founder and Director of the Centre of Light for Life, University of Adelaide (Currently a group of 20)
- 2022* Swedish Research Council, External International Reviewer: Evaluation of research in physics
- 2020-* Associate Editor for the American Chemical Society journal ACS Photonics
- 2019-2022* Elected Affiliate Professor, Yonsei University, South Korea
- 2018-2022* Director of the Centre of Biophotonics at the University of St Andrews (140 researchers)
- 2018* CNRS France, Neuroscience Programme, External Reviewer Panel
- 2018* Optica Siegman School Lecturer, Sweden
- 2016-2021* International Science Committee Member for ARC Centre of Excellence: Nanoscale Biophotonics
- 2013* Chair of OSA (now Optica) Fellows Committee
- 2013* Korean Government International Advisor and Committee Member for new \$100M IBS Initiative
- 2012-2016* Scottish Universities Physics Alliance "Physics and the Life Sciences" theme leader
- 2010* Elected as NSERC International member for Research Assessment (Canada)

## Service to SPIE

- 2004-current* Conference Chair of Optical Trapping and Optical Manipulation, San Diego, USA
- 2014-current* Conference Chair of Optical Manipulation Conference, OPIC, Yokohama, Japan
- 2019* Chair and Organiser of International Conference on Biophotonics (ICOB), St Andrews, UK
- 2019-2020* Editorial Board of Advanced Photonics
- 2005-current* Lecturer and Advisor at the Biannual Biophotonics Summer School, Hven, Sweden
- 2007-current* Conf. Program Committee - SPIE OPTO, Complex Light and Optical Forces

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*2016-current* Conf. Program Committee - SPIE BiOS, Optical Elastography and Tissue Biomechanics

*2018-current* Student Chapter Advisor: University of St Andrews (2018-2022); University of Adelaide (2024-)

## Professional Honors

- 2021* Australian Research Council Laureate Fellowship
- 2018* Recipient of the SPIE Dennis Gabor Award
- 2017* Recipient of the Institute of Physics Thomas Young Medal and Prize
- 2017* Distinguished Professor in Elec Engineering at IIT Madras, Chennai, India
- 2016* Recipient of Optica (formerly The Optical Society OSA) R.W. Wood Prize
- 2015* Guinness Book of World Records citation: "Fastest man-made rotation"
- 2015* Royal Society Leverhulme Trust Senior Fellowship (UK)
- 2012* Visiting Professor at Chiba University, Japan
- 2011-2019* Nature Publishing Group, "Exceptional" Reviewer
- 2009* Elected Fellow of International Society of Optics and Photonics, SPIE
- 2008* Royal Society Wolfson Merit Award (UK)
- 2008* Elected Fellow of the Optical Society of America (now Optica)
- 2007* Fellow of the Royal Society of Edinburgh
- 2005* Honorary Adjunct Professor at the Center for Optical Sciences, University of Arizona, USA
- 2004* Fellow of the Institute of Physics, UK.
- 2003* European Optics Prize for work on optical micromanipulation.
- 2004* International Tan Chin Tuan Visiting Fellowship at NTU, Singapore

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## Election Statement

I am honored to be put forward as a candidate for SPIE Director. SPIE's mission is to promote all aspects of our field. SPIE partners and promotes researchers, educators, and industry to advance light-based research and technologies for the betterment of society. My overarching goal will be to support and reinforce SPIE in its endeavours and in particular, seek ways to enhance its value both to the individual member and the community at large.

I am privileged to work across the spectrum: from fundamental photonics to translation of technology in the life sciences and medicine: As an example, my group developed a new form of light sheet microscope that is now used in over ten countries around the world. I am excited and truly motivated by the current and future potential impact of optics and photonics technologies for societal advancement and health. My research is particularly underpinned by thinking about how light propagates and how we can utilize this to perform studies that hitherto seemed impossible. Examples include imaging deep in tissue, optically analysing our food and drink whilst still in its original container and exploring the classical-quantum boundary with 'large' objects, the size of cells, suspended by light.

SPIE has made a huge impact on me personally. I still recall my first trip to Photonics West: the nerves associated with giving a talk, walking the exhibit floor and meeting and engaging with luminaries whose names at the time I only knew as authors on publications. The motivation, excitement and inspiration I felt then hasn't left!

Empowering an individual to making a difference in this World and coming up with a breakthrough invention or discovery is very exciting and motivating. With this in mind, I aim to advise and support SPIE to further its mission with the underpinning ethos of enhancing the experience of all, but particularly, early career researchers: they are our future. Three areas I wish to prioritise if elected are as follows:

### 1) Expanding SPIE's Global Reach:

I am enthused that SPIE works closely with industry clusters and trade organizations such as the US National Photonics Initiative, the UK Photonics Leadership Group, and the EU's Photonics21. I aim to bring the SPIE message and experience to an ever-broader range of aspiring and established researchers. This might for example, consider paths to increase interaction and engagement with all four corners of the World. In turn, this can also lead to diverse communities across the globe engaging further with the core activities of SPIE.

### 2) Enhancing the Student Chapter Experience:

I would wish to explore how the Society can enhance the experience for student chapters: new approaches to connect several local chapters into a more substantive node for enhanced dialogue and interaction. I am also passionate about exploring new forms of mentorship with a particular focus on retaining researchers from diverse backgrounds. My view is these chapters can act as a springboard for the photonics leaders of tomorrow.

### 3) Leveraging Photonics for Societal Good:

In this world with burgeoning societal challenges, I would ask how SPIE can engage with an ever more diverse and global range stakeholders to leverage and use photonics for the good of all.

If elected to the Board of Directors, I hope to engender a welcoming, inclusive community for the next generation of research and translation with the science of light. SPIE can be at the heart of empowering individuals in our global community and truly make the 21st Century that of photonics and biophotonics.

I am looking forward to working with this vast photonics and optics community to promote its values and its mission to a broader community.