

## CURRICULUM VITAE – KISHAN DHOLAKIA

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### EDUCATION

1990-1993 Imperial College, London, PhD in Laser Physics (laser cooling and trapping of ions)

1989-1990 Imperial College, London, M.Sc. (with distinction) in Applied Optics

1985-1988 Churchill College, Cambridge University, B.A. (Natural Sciences, Physics)

### EMPLOYMENT

2022 Director, Centre of Light for Life, Adelaide, Australia

2022- Professor, School of Biological Sciences, University of Adelaide

2003- Professor of Physics, University of St Andrews

2000 - 2003 Lecturer/Reader in School of Physics and Astronomy, St Andrews

1997 - 2000 Royal Society of Edinburgh Research Fellow, University of St Andrews

1994 - 1997 Postdoctoral Research Assistant, St Andrews and Imperial College, London

### INTERNATIONAL AWARDS/HIGHLIGHTS/MEMBERSHIPS

2023 Node Leader for ARC Centre of Excellence on Breakthrough Science with Frequency Combs

2021 Associate Investigator for ARC CoE Transformative Meta-Optical Systems (led by ANU, Canberra)

2021 ARC Laureate Fellowship (start 2022)

2020 Visiting Professor, University of Adelaide, Australia

2020 Invited as Associate Editor for the American Chemical Society (Journal ACS Photonics, IF =7.3)

2019 Elected Affiliate Professor at the Department of Physics, College of Science, Yonsei University, South Korea

2018 Recipient of the SPIE Dennis Gabor Award

2017 Recipient of the Institute of Physics Thomas Young Medal and Prize

2017 Distinguished Professor IIT Madras, Chennai, India

2016 Recipient of The Optical Society (OSA) R.W. Wood Prize

2016 Recipient of Institute of Advanced Studies, Distinguished Visiting Fellowship at the University of Western Australia, Perth, Australia

2015 International Year of Light Lecture, Tate Modern, London

2015 Guinness Book of Records citation: “fastest man-made rotation”

2015 Royal Society Leverhulme Trust Senior Fellowship

2014 Elected OSA “Member at Large”

2013 Chair of OSA Fellows Committee

2013 Korean Government International Advisor for new \$100M IBS Initiative

2012 Visiting Professor at Chiba University, Japan (extended until 2024)

2013 Elected to OSA International Council

2012 OSA Outstanding Reviewer Award

2011- 2015 Nature Publishing Group, “Exceptional” Reviewer

2010 Elected as NSERC International member (Canada)

2008 Royal Society Wolfson Merit Award

2008 Elected Fellow of the Optical Society of America

2009 Elected Fellow of SPIE

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 Winner of European Optics Prize for work on optical micromanipulation.

2004 Awarded the International Tan Chin Tuan Visiting Fellowship at NTU, Singapore

### PRESENT FUNDING TRACK RECORD

*I have been awarded over GB£50M in Research Funding since 2000. Examples:*

**UK and Europe** EPSRC Programme Grant: Challenging the Limits of Photonics: structured light (2012-2017), £4,406,673;

EU FP7 ICT Functional anatomical molecular optical screening (FAMOS) (2012-2017) €654,516; EPSRC Platform Grant:

Shaping light at the interface (2014-2019) £1,183, 629; EPSRC Programme Grant: Resonant and Shaped Photonics (2017-2022) £5,023,462; EPSRC Prosperity Partnership (2017-2022) £1,434,010. EU H2020 Proscope Grant €650,000 (2019-2023); EU DyNamiC grant €825,000 (2019-2023).

**Australia** ARC Laureate Fellowship (2022-2027) “The Intelligent Microscope” \$3,401,828M  
NHMRC Ideas Grant (2021-2024, CIB), \$1.277M “A new light on diagnosing embryo health”  
ARC Discovery project “Levitated Quantum Optomechanics” \$650k, (Dec 2021)

**INVITED/PLENARY/KEYNOTE TALKS.** I have delivered >250 Invited/Plenary/Keynote talks. I average 10+ invited talks and 3-4 Plenary talks/year. Visiting Fellow positions in the USA, Australia, Singapore and Mexico. I have also been an Invited Lecturer at fifteen International Summer Schools in Photonics and Biophysics (incl. Mexico, Denmark, Sweden (**Hven Biophotonics School**)). I have delivered over ten international talks as **OSA Travelling Lecturer**. Invited Lecturer at the **OSA Siegman School in 2018**. Selected as the International Researcher/Lecturer for the “Erudite” Programme in Cochin, India (restricted solely Nobel Prize Winners and World Recognised Researchers)

**JOURNAL PUBLICATIONS** I have >375 journal publications including over twenty in Nature/Science family journals. My career citations/statistics are h-index 99, 42300 citations (Google Scholar). Key papers for imaging are:

**Light-sheet microscopy using an Airy beam**

T. Vettenburg, H. I. C. Dalgarno, J. Nylk, C. Coll-Llado, D. E. K. Ferrier, T. Cizmar, F. J. Gunn-Moore, and K. Dholakia, *Nat Methods* 11, 541-544 (2014).

**Wide-field multiphoton imaging through scattering media without correction**

Adrià Escobet-Montalbán, Roman Spesyvtsev, Mingzhou Chen, Wardiya Afshar Saber, Melissa Andrews, C. Simon Herrington, Michael Mazilu and Kishan Dholakia, *Science Advances*, 4, eaau1338 (2018)

**Light-Sheet Microscopy with Attenuation-Compensated Propagation-Invariant Beams**

Jonathan Nylk, Kaley McCluskey, Miguel A. Preciado, Michael Mazilu, Zhengyi Yang, Frank J. Gunn-Moore, Sanya Aggarwal, Javier A. Tello, David E. K. Ferrier, and Kishan Dholakia, *Science Advances* 4, eaar4817 (2018)

**Light Sheet Microscopy With Acoustic Sample Confinement**

Zhengyi Yang, Katy L. Cole, Yongqiang Qiu, Ildikó M. L. Somorjai, Philip Wijesinghe, Jonathan Nylk, Sandy Cochran, Gabriel C. Spalding, David A. Lyons, and Kishan Dholakia, *Nature Communications* 10, 669 (2019)

**Spatially offset optical coherence tomography: leveraging multiple scattering for deeper high-contrast imaging at depth in turbid media**

Gavrielle R. Untracht, Mingzhou Chen, Philip Wijesinghe, Josep Mas, Harold T. Yura, Dominik Marti, Peter E. Andersen and Kishan Dholakia, *Science Advances* 9, eadh5435 (2023)

**LEADERSHIP EXPERIENCE** I have led several collaborative UK and EU projects to very successful outcomes. Examples include co-ordination of the ATOM-3D NEST fp6 network of seven European partners that yielded 61 high impact papers (over 50% joint work, 2004-2007). I am PI of the current EPSRC Programme Grant (Resonant and Shaped Photonics (2017-2022) £5,023,462). The previous Programme Grant, where I was also PI, was top rated (6/6) by the Advisory Board and EPSRC for high quality outputs, industry liaison and exhibiting exceptional flexibility. I have co-organised (or co-chaired) > 12 international meetings in the last five years, including the largest international conference on trapping (typ. 100-150 participants, SPIE, USA) and am topical chair and instigator of the new Neurophotonics Topical Session at CLEO, USA (2016, 2017). I was head of the SUPA Physics and Life Sciences theme (2011-2015) and successfully brought the theme to prominence. Invited international committee member for five major international Biophotonics initiatives since 2010 (e.g. Korea, Australia, Czech Republic). Chair of Int Conference on Biophotonics 2019: [www.icob2019.com](http://www.icob2019.com)

**CONTRIBUTIONS TO TEACHING AND CAREER DEVELOPMENT** I have successfully supervised **54 students** to PhD level since 1999 (over 70% as sole supervisor). Student Susan Skelton won the UK Best Physics “SET” student Prize in 2009. **Fifteen members of my team** have permanent academic positions worldwide (four at full Professor level).

**INDUSTRIAL ACTIVITIES AND GRANTED PATENTS** I commercialized the World’s first portable compact suite of optical trapping systems for biophysics (through **Elliot Scientific Ltd**). This product won the Photonics Circle of Excellence Award (USA, Jan 2005) and sales in excess of £3M have been achieved to date. Twenty-seven main patent families (approx. 110 individual patents) of which twenty-three families are licensed. More than 54 individual patents awarded worldwide in areas of beam shaping, manipulation, Raman and imaging. In 2015 a £2.2M licence deal transferred the 23 patent families (Biophotonics Portfolio) to **M Squared Lasers**. In 2016 I commercialised Airy beam Light Sheet Technology with subsidiary **M Squared Life** (<http://www.m2lasers.com/microscopy-aurora.html>). Currently 17 instrument sales have been made in UK, USA, Europe and South Africa under an Alpha Programme including systems at NPL, London, Max Planck Institutes in Germany, MRC Centres in London and John Hopkins, USA. A further ten new patents are filed since Jan 2015.