CURRICULUM VITAE

Majid Ebrahim-Zadeh Date of Birth: 5 May 1962 Nationality: UK Website: *ICFO – OPO Group*

- **EDUCATION**

1989 PhD in Laser Physics and Nonlinear Optics, University of St Andrews, UK
1985 MSc in Optoelectronics and Lasers, University of St Andrews/Heriot-Watt University, UK
1984 BSc in Physics and Electronics, University of St Andrews, UK

- **CURRENT POSITION**

2003–Present ICREA Professor, ICFO-The Institute of Photonic Sciences, Barcelona, Spain

- **PREVIOUS POSITIONS**

1997–2003 Reader in School of Physics and Astronomy, University of St Andrews, UK
1998–2003 Royal Society of London Research Fellow (II), University of St Andrews, UK
1993–1998 Royal Society of London Research Fellow (I), University of St Andrews, UK
1992–1993 EPSRC Postdoctoral Research Fellow, University of St Andrews, UK
1990–1992 EPSRC Postdoctoral Research Fellow, University of Strathclyde, UK
1988–1990 EPSRC Postdoctoral Research Associate, University of St Andrews, UK

- **AWARDS, PRIZES, FELLOWSHIPS**

2021 OSA David Richardson Medal, USA
2017 ICREA Professor Outstanding Evaluation Award, Spain
2014 Distinguished Invited Professor, University of Paris Diderot, France
2012 Fellow, The International Society for Optics & Photonics (SPIE), USA
2012 ICREA Professor Outstanding Evaluation Award, Spain
2010 Berthold Leibinger Innovation Prize, Germany
(Jury included Professor Theodor Hänsch, *Nobel Laureate in Physics 2005*)
2007 ICREA Professor Outstanding Evaluation Award, Spain
2004 Innova Prize for Technology Innovation and Enterprise, Spain
2004 Fellow, Optical Society of America (OSA), USA
2003 ICREA Professor Competitive Award, Spain
1999 Royal Society of London Merit Award (II), UK
1998 Royal Society of London Research Fellowship (II), UK
1995 Royal Society of London Merit Award (I), UK
1993 Royal Society of London Research Fellowship (I), UK
1978 British Council Talented International Student Award, UK

- **ORGANISATION OF SCIENTIFIC CONFERENCES**

General Chair

2022 General Co-Chair: *Mid-Infrared Coherent Sources, MICS 2022*, Budapest, Hungary
2020 General Co-Chair: *Mid-Infrared Coherent Sources, MICS 2020*, Prague, Czech Republic
2018 General Chair: *8th EPS-QEOD Europhoton Conference*, Barcelona, Spain
2018 General Co-Chair: *Mid-Infrared Coherent Sources, MICS 2018*, Strasbourg, France
2016 Co-Chair: *Mid-Infrared Coherent Sources, MICS 2016*, Long Beach, USA
2013 Co-Chair: *Mid-Infrared Coherent Sources, MICS 2013*, Paris, France
2012 Chair: *NLO50 International Symposium – 50 Years of Nonlinear Optics*, Barcelona, Spain
(with participation of two *Nobel Laureates*: C H Townes and N Bloembergen)
2005 Chair: *Workshop on Mid-Infrared Coherent Sources, MICS 2005*, Barcelona, Spain

Committee Chair

2020 Symposium Chair: *33rd Annual IEEE Photonics Conference (IPC)*, Vancouver, Canada
2020 Committee Chair: *33rd Annual IEEE Photonics Conference (IPC)*, Vancouver, Canada
2019 Committee Chair: *32nd Annual IEEE Photonics Conference (IPC)*, San Antonio, TX, USA
2018 Committee Chair: *31st Annual IEEE Photonics Conference (IPC)*, Reston, Virginia, USA
2016 Committee Chair: *Solid-State Lasers, 7th EPS-QEOD Europhoton Conf.*, Vienna, Austria
2000, 2001 Committee Chair: *Applications of Nonlinear Optics, CLEO/QELS*, USA

Committee Member (10-YEAR, Selected)

2020 *International Commission for Optics, ICO-25-OWLS World Congress*, Dresden, Germany
2005–2019 *SPIE LASE, Photonics West*, San Francisco, USA (Annual)
2010–2018 *Nonlinear Optics & Applications, SPIE Photonics Europe* (Biennial)
2017 *Nonlinear Optical Technologies, CLEO/USA*, San Jose, USA
2016 *Siegman International School on Lasers*, Barcelona, Spain
2014 *Solid-State Lasers, 6th Europhoton Conference*, Neuchatel, Switzerland
2011–2015 *Advanced Solid-State Lasers (ASSL)*, Optical Society of America (Annual)
2012 *Solid-State Lasers, 5th Europhoton Conference*, Stockholm, Sweden
2011–2013 *Nonlinear Optics*, Optical Society of America (OSA), Hawaii, USA (Biennial)
2011 *European Opt. Society Topical Meeting on Lasers*, Capri, Italy

- **SCIENTIFIC POSTS AND RESPONSIBILITIES**

2019–2022 Associate Editor, *Optica*, Optical Society of America, USA
2016–2019 Associate Editor, *Optica*, Optical Society of America, USA
2003, 2016, 2018, 2021 Guest Editor, *J. Opt. Soc. Am B*, USA
2016 OSA Traveling Lecturer, USA
2012–2016 Associate Editor, *IEEE Photonics Journal*, USA
2007–2009 Associate Editor, *Advances in Nonlinear Optics*, USA
2003–2010 Topical Editor, *Optics Letters*, Optical Society of America, USA
1998–2003 Advisory Editor, *Optics Letters*, Optical Society of America, USA

- **ADVISORY BOARDS AND COMMISSIONS OF TRUST (10-YEAR, Selected)**

2021 Selection Committee: *Laser Instrumentation Award*, IEEE Photonics Society, USA
2021 Advisory Committee: *Frontiers in Optics and Photonics (FOP 2021)*, India
2021 Steering Committee: *International Advanced Fiber Laser Conference (AFL 2021)*, China
2021 Expert Panel: *National Research Council (CNCS)*, Fundamental Research Projects, Romania
2020, 2021 Expert Panel: *Research Council of Lithuania (RCL)*, European funded projects, Lithuania
2020 Advisory Committee, *International Symposium on Optics (OSI-ISO)*, Opt. Soc. of India, India
2019–2022 College of Expert Reviewers: *European Science Foundation*
2019–2021 Selection Committee: *C E K Mees Medal*, Optical Society of America, USA
2019 International Expert Panel: *MSc in Photonics Engineering program*, DTU, Denmark
2018 International Advisory Board: *Photonics 2018*, Optical Society of America, India
2018 Jury: *EPS Prize for Research in Laser Science and Applications (RLSA)*, Euro. Phys. Soc.
2018 Industry Expert Panel: *European Photonics Venture Forum (EPVF)*, Barcelona, Spain
2017, 2018 Steering Committee: *EPS-QEOD Europhoton Conference*, European Physical Society
2020 Panel Deputy Chair: *ERC Advanced Grants*, European Research Council, Brussels, Belgium
2018 Panel Member: *ERC Advanced Grants*, European Research Council, Brussels, Belgium
2016 Panel Member: *ERC Advanced Grants*, European Research Council, Brussels, Belgium
2014 Panel Member: *ERC Advanced Grants*, European Research Council, Brussels, Belgium
2017 Expert Evaluation Committee: *Tenure Track Appointments*, Aalto University, Finland
2017 Panel Member: *Research Council of Lithuania (RCL)*, EU Invest. Funds, Lithuania
2016 Evaluation Committee: *Academic Promotion*s, Johns Hopkins University, USA
2016 Panel Member: *European Union R&D Programmes*, Slovenia
2015, 2016 Selection Committee: *IUF-Institut Universitaire de France*, *Senior Awards*, France
2015–2019 Expert Evaluator: *Swiss National Science Foundation* (*SNSF*), Switzerland
2014 International Advisory Board: *Photonics 2014*, *Optical Society of America*, India
2012 Nomination Committee: *Charles Townes Laser Prize*, Optical Society of America, USA

- **MEMBERSHIPS OF SCIENTIFIC SOCIETIES**

2012 Fellow, International Society Optics & Photonics (SPIE), USA
2004 Fellow, Optical Society of America (OSA), USA

- **SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS**

PhD Supervision: 24 (22 graduated, 2 ongoing); **Post-doc:** 18 (currently 2); **PhD Co-supervision:** 6
PhD ADVISOR (Current): S Sukeert, Joseph Wragg
PhD ADVISOR (Graduated): Biplob Nandy, A Padhye (Marie-Curie), J Wei (PD Fellow, UL Brussels), J C Casals (Data Scientist, Barcelona), S Parsa (HemoPhotonics, Barcelona), C O'Donnell (Marie-Curie), H Ye (Marie-Curie; U Bordeaux, France), E S Bautista (Policy Officer, European Physical Society), R V Badarla (JSPS Fellow, U Tokyo, Japan), K Devi (Assist Prof, IIT Dharwad, India), S C Kumar (Ramon y Cajal Fellow, ICFO), G K Samanta (Assoc Prof, PRL, India), S Ghavami (Assist Prof, U Isfahan, Iran), G R Fayaz (Assist Prof, U Tafresh, Iran), M Ghotbi (Assist Prof, U Kurdistan, Iran), O Kokabee, K Moutzouris (Assoc Prof, U West Attica, Athens, Greece), C Petridis (Assoc Prof, Tech. Ed. Inst. Crete, Greece), I D Lindsay (Marie Curie/EPSRC Fellow, U Bristol, UK), P J Phillips (Laser Scientist, Science & Technology Facilities Council, UK), S French, D Stothard (Laser Scientist, Fraunhofer, UK)

Post-Doctoral Fellows (Current): S Chaitanya Kumar, Alfredo Daniel Sanchez

Post-Doctoral Fellows (Past): K Devi (Assist Prof, IIT Dharwad, India), A Esteban-Martin (Assist Prof, U Valencia, Spain), O Kimmelma (Laser Scientist, nLight Photonics, Finland), G K Samanta (Assoc Prof, PRL, India), R Das (Assoc Prof, NISER, India), S Sanguinetti, L Kornaszewski (Laser Scientist, M2 Lasers, UK), M Ghotbi (Assist. Prof, U Kurdistan, Iran), Zhipei Sun (Prof, U Aalto, Finland), F Raineri (Assoc Prof, U Paris Diderot, France), C T A Brown (Prof., U St Andrews, UK), S Das (Assoc Prof, U Burdwan, India), P J Phillips (Laser Scientist, Science & Tech. Facilities Council, UK), F G Colville (Vice President, Solarbuzz, USA), C Petridis (Assoc Prof, Tech. Inst. Crete, Greece), S V Rao (Prof, U Hyderabad, India)

- **INTERNATIONAL COLLABORATIONS (10-YEAR, Selected)**

– Prof T W Hänsch, MPQ, Germany, *Nobel Prize in Physics 2005* [1 journal paper; 1 conference paper]
– Dr P G Schunemann, BAE Systems, USA [20 journal papers, 8 proceedings papers, 36 conference papers]
– Prof G K Samanta, PRL, India [15 journal papers, 16 conference papers]
– Prof C Pedersen, DTU, Denmark [3 journal papers, 3 conference papers]

Research Profile Summary The research work of PI has led to >600 peer-reviewed publications, including >210 journal papers (5 invited), >100 invited, keynote and plenary talks, and 14 post-deadline papers at leading international conferences. He has edited 2 books and authored 15 major invited book chapters and reviews in volumes such as *Science*, *OSA Handbook of Optics*, *Springer*, *Handbook of Laser Technology & Applications*, *Laser & Photon. Reviews*, which have provided comprehensive treatise on nonlinear optics and OPOs. He has regularly delivered invited tutorials, popular talks, seminars, colloquia, and advanced professional courses at major international conferences and forums in Europe, USA and Asia, including the short course on OPOs at the OSA flagship conference, *CLEO/USA* (1996-2010), and at *CLEO/Europe*, Germany (since 2007).

Unlike the field of high-intensity single-pass optical parametric generators/amplifiers (OPG/OPAs) involving a large international research community, OPO research is restricted to no more than 3-5 mainstream groups worldwide. The main barrier in OPO research field is the attainment of oscillation threshold to initiate device operation (in contrast to threshold-less OPG/OPA systems). This is generally challenging, because of the orders-of-magnitude lower gain in the regime of low-intensity nonlinear optics compared to high-intensity pulses deployed in OPG/OPAs. As such, the realisation of OPO sources mandates the use of carefully designed cavities with intricate resonance schemes to achieve oscillation threshold. The PI is unique in the world in that his research and innovation in the field of OPOs have encompassed all time-scales from continuous-wave (CW) to few-cycle femtosecond domain, where despite common underlying principles, different design concepts, technical and experimental know-how, and engineering expertise are necessary for successful implementation of OPO systems in practice.

Google Scholar profile: *h*-index: 51, Citations: 7715, !10-index: 163

Researcher unique identifier: ORCID ID: 0000-0003-2849-0390

PUBLICATIONS (ALL-TIME)

Total Peer-Reviewed: >600. **Journal Papers:** 208 (List); 5 Invited; **Proceedings:** 24 (4 Invited);

Peer-Reviewed Conference Papers: >265; **Post-deadline Conference Papers:** 14 (List);

Invited Conference Talks: >100 (List)

Book chapters and Monographs: 11 (Invited): Full List [*Springer* 1993 (Ch.6), *CRC* 1997 (Ch. 9); *CRC* 1999 (Ch. 4); *Science* 1999; *Springer* 2003 (Ch. 5), *Springer* 2008 (Ch. 6); *OSA Handbook of Optics* 2000, *Handbook of Optics* 2010; *Phil. Trans. Royal Soc. Lond.* 2003; *Handbook of Laser Techn. Appl.* 2003 (Ch. C3.2); *Laser & Photon. Rev.* 2010: total 384 pages].

Book Editorships: [*Springer* 2008: 625 pages; *CRC* 1999: 496 pages].

Sort Courses: Regular Short Course Instructor on OPOs at the two leading international conferences in photonics, *CLEO/USA* (1996-2010, annual) and *CLEO/Europe* (2007-2021; biennial).

10-YEAR TRACK RECORD

PUBLICATIONS (10-YEAR)

Total Peer-Reviewed: >300. **Journal Papers:** 101 (List); 4 Invited; **Proceedings:** 4;

Peer-Reviewed Conference Papers: >150; **Post-deadline Conference Papers**: 4 (List);

Invited Conference Talks: >50 (List)

(Senior author on >95% of publications).

Short Courses: Short Course Instructor on OPOs: *CLEO/USA* (2009, 2010) and *CLEO/Europe* (2009, 2011, 2013, 2015, 2017, 2019, 2021). OSA Traveling Lecturer (2016).

ORGANISATION OF SCIENTIFIC CONFERENCES

General Chair/Co-Chair: 7 international conferences; Program Committee Chair: 5 international conferences Technical Committee Member: 30 international conferences.

EDITORSHIP OF JOURNALS Associate Editor, *IEEE Photonics Journal* (2012-2016); Associate Editor of *Optica* (2016-2019; 2019-2022); Guest Editor, *J. Opt. Soc. Am. B* (2016, 2018, 2021)

MAJOR CONTRIBUTIONS TO EARLY CAREER OF EXCELLENT RESEARCHERS

PhD Supervision: 13 (11 graduated; 2 ongoing); **Post-Doc:** 6 (currently 2); **PhD Co-supervision**: 2

PhD Advisor (Current): S Sukeert, Joseph Wragg

PhD Advisor (Graduated): Biplob Nandy (2020), Anuja Padhye (Marie-Curie, 2020), Callum O'Donnell (Marie-Curie, 2019), Hanyu Ye (Marie-Curie, 2019), Junxiong Wei (2018), J C Casals (2018), S Parsa (2018), E S Bautista (2015), R V Badarla (2014), K Devi (2013), S Chaitanya Kumar (2011)

PhD Co-Advisor (Graduated): M Mathez (DTU, Denmark), Y-P Tseng (DTU, Denmark)

- **SELECTED RESEARCH PROJECTS & GRANTS**

10-YEAR

	Project Title	Funding Agency	Amount	Role
2021-2023	*Next-generation ultrafast laser technology based on novel fiber-based optical parametric sources (Nutech)*	MCIN/AEI, SPAIN (PID2020-112700RB-I00)	€185,000	PI
2021-2025	*Ramón y Cajal 2020* (*S Chaitanya Kumar*)	MICINN, SPAIN (RYC2019-027144-I)	€208,600	PI
2016-2019	*Novel ultrafast ultrabroadband optical paraetmric oscillators*	MICINN, SPAIN (TEC2015-68234-R)	€298,000	PI
2015-2018	*Infrared sensing made visible (Mid-Tech*-642661)	European Commission (H2020-MSCA-ITN-2014)	€744,000	PI
2013-2015	*Femtosecond combs for high-resolution spectroscopy in the mid-IR (METROCOMB)*	European Commission (FP7) *Research 4 SME Project* (FP7-SME-2013-605057)	€330,00	PI
2013-2015	*Miniaturized diagnostics and frequency conversion modules for ultrafast lasers (MINIMODS)*	European Commission (FP7) *Research 4 SME Project* (FP7-SME-2013-606141)	€260,000	PI
2013-2015	*Widely tunable laser system in the mid-infrared*	ACCIÓ, Generalitat Catalunya SPAIN (VALTEC13-1-0003)	€100,000	PI
2012-2015	*Optical parametric oscillators with enhanced flexibility*	MINECO, SPAIN (TEC2012-37853)	€299,700	PI
2009-2012	*Novel fiber-based light sources spanning visible and ultraviolet*	MINECO, SPAIN (TEC2009-07991)	€251,400	PI

- **SELECTED CONTRACTS**

10-YEAR

2014-2017	*Novel ultrafast lasers for the mid-IR*	EOARD, UK (FA9550-14-1-0390)	$255,000	PI
2014-2015	*New mid-IR laser source*	FCRI-Catalunya, SPAIN (EDI-PILOT-2014-2)	€30,000	PI
2013-2015	*Widely tunable laser system in the mid-infrared*	ACCIÓ, Generalitat Catalunya SPAIN (VALTEC13-1-0003)	€100,000	PI
2012-2014	*Compact fiber-based sources in mid-IR & THz spectrum source for 5-12 μm spectrum*	EOARD, UK (FA8655-12-1-2128) (FA8655-09-1-3017)	$99,231	PI

LEADERSHIP IN INDUSTRIAL INNOVATION AND DESIGN

Majid Ebrahim-Zadeh has a long-standing and successful track record in technology transfer and industrial innovation spanning over 15 years. He created *Radiantis*, the first spin-off company from his institute, ICFO, in Barcelona, Spain, in 2005, with the goal of transforming OPO technology from his research laboratory to the commercial and industrial sector. He has served as director and the chief scientist of *Radiantis* since its foundation, helping to expand its technology platform and achieve steady growth. During its lifetime, the company has provided direct employment for more than 20 personnel in the valuable high-tech sector, including 15 PhD graduates, and has recorded sustained growth and performance, making significant societal and economic contributions to Catalunya and Spain. To date, *Radiantis* has supplied over 120 OPO and nonlinear frequency conversion systems to leading research institutes and universities worldwide (U Cambridge, U Southampton, ETH Zurich, UC Berkeley, U Columbia, UC Irvine, U Toronto, U McMaster, U Dresden, Karlsruhe Institute of Technology, DTU Denmark, U Cardiff, Australian National U, etc.) and major companies (Philips, Nikon, NTT, etc.). Today, the company is internationally recognised as a leading manufacturer of state-of-the-art OPO technology, and since 2009 it has been a certified supplier to one of the largest laser companies in the world, *MKS/Newport/ Spectra-Physics*, USA, who offer *Radiantis* systems to world market. See: *Inspire*; *Inspire IR*; *Inspire Blue*.