

# HALINA RUBINZSTEIN-DUNLOP

Professor of Physics, Director of Australian Research Council Centre of Excellence on Engineered Quantum Systems, EQUS, Translational Research Laboratory, University of Queensland, Australia, Deputy Director of Australian Research Council Centre of Excellence in Quantum Biotechnology, QUBIC.

## Education

Docent in Physics, Chalmers University of Technology and University of Gothenburg, Sweden.  
PhD in Physics, University of Gothenburg, Gothenburg, Sweden.  
BS and MS in Physics, University of Gothenburg, Sweden.

## Technical Activities/Interests

- Quantum atom optics, optical micromanipulation, Optical Tweezers
- Biophotonics, studies of biological systems in vivo
- Quantum sensors and quantum devices
- Translational research

## Services to the Technical Community

- Australian Academy of Science Council Member, 2018–2020
- Member Scientific Advisory Board - NTT, Basic Research Laboratory, Japan 2013–2018
- Member of the Scientific Advisory Board, Engender, New Zealand, 2016–2019
- Member of the Board of Beckman Laser Foundation, USA, 2012–
- Co-Chair of APPC-AIP Congress, Brisbane 2016.
- Member of the Advisory Board of Wonders of Science Program, The Australian Academy of Technological Sciences and Engineering 2012–2016
- Member of the International Review Committee of German Research Foundation
- Member of Physics and Chemistry Panel of New Zealand Royal Society Marsden Foundation, 2017–2020
- Member of ARC College of Experts, 2016–2018.
- Member of editorial Boards and coeditor for Journal of Optics, Optica, Scientific Reports, AVS Quantum Science.
- Member of Program Committees for many International Conferences.
- Member of Scientific Advisory Board of ICFO, Spain 2020–
- Member of the Organizing Committee of IUPAP International Conference on Women in Physics, Virtual meeting, 11–16 July 2021.
- Member of the Scientific Advisory Board of the Dodd-Walls Centre 2023–

## Service to SPIE

- SPIE Board Member 2020–2022
- Chair of SPIE Optics and Photonics Nanoscience + Engineering Symposium (together with Mark Brongersma), 2018, 2019
- Chair of SPIE Symposia Committee and Advisor to the SPIE Board of Directors 2017–2020
- Member of SPIE Publications Committee, 2017–2019
- Member and Chair of SPIE Equity, Diversity and Inclusion Committee, 2018–2022
- Member of the Program Committee of SPIE Optics and Photonics, Optical Trapping and Optical Micromanipulation Conference; Molecular and Nanophotonic Machines; Emerging Topics in Artificial Intelligence
- Member of Program Committee of SPIE Photonic West, Complex Light and Optical Forces (co-Chair).
- Member of SPIE Strategic Planning Committee, Ad-hoc Committee of Ethics and Revocation, Presidential Advisory Committee, Nomination and Leadership Development Committee.

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## Professional Honors

- 2018–Officer in the General Division (AO) of the Order of Australia. For distinguished service to laser physics and nano-optics as a researcher, mentor and academic, to the promotion of educational programs, and to women in science.
- Fellow of the Australian Academy of Science
- Fellow of SPIE
- Fellow of OSA
- Fellow of Australian Institute of Physics
- 2018–Australian Optical Society W.H. (Beattie) Steel Medal.
- 2018–Eureka Prizes Winner in UNSW Eureka Prize for Excellence in Interdisciplinary Scientific Research (Optical Physics in Neuroscience).
- 2019–Lise Meitner Distinguished Lecture Tour, Germany and Austria
- 2021–AIP Harrie Massey Medal
- 2020–C.E.K. Mees Medal, Optical Society of America (OSA)
- 2022–Moyal Medal, Macquarie
- 2023–Honorary Degree of Doctor of Science, Glasgow University.

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## **Election Statement**

I'm writing to seek your vote in the election for the next Vice President of SPIE. I'm honoured to be nominated as a candidate.

Our field is undergoing one of the biggest, and fastest, transformations in its history. New light-based research and technologies are offering solutions to global challenges in industries as diverse as communications, energy, education, agriculture and health.

As we navigate through this rapidly evolving international landscape, our Society needs to build new connections, expand our global reach, foster growth, develop a skilled and diverse workforce, and support new industries, as a truly world-leading organisation.

It is more important than ever for SPIE to be a port of call for people involved in optics and photonics in all parts of the world and at all stages of their careers.

As Vice President, I would draw on my decades of experience as a leader and pioneer in our field to increase the reach and inclusion of SPIE, and engage and build our global community. I would seek to expand our engagement with local optical societies in Asia, Africa and the Americas by introducing more local meetings sponsored by the Society and promoting other collaborative programs.

I would focus on fostering diverse and emerging international talent through targeted development programs and new fellowships for early and mid-career professionals. I would also target these groups for volunteer roles within the Society and provide them with training and mentoring to develop leadership skills.

I also see a significant role for SPIE in the promotion of new scientific and technological developments in optics and photonics. Our Society has already demonstrated a visionary approach through events like the highly successful BIOS and Quantum West conferences. We should identify and recognise more new and upcoming areas, and bring them into SPIE's fold through new conferences and workshops, with representation from current and future leaders of science, technology, and developing industries. We need to stay on top of new trends and developments in optics and photonics, consult with specialist groups from industry and academia, and develop new directions for the Society. I would be very interested in driving these developments.

SPIE can also expand its role in the promotion and popularisation of science. This can be achieved through a series of public lectures given by outstanding people in our field in connection with the major events organised by SPIE, with invitations extended to the local community. Our social media platforms can also extend their reach further.

My long career as an internationally recognised leader in interdisciplinary research and applications, based in Australia - as well as my years of service to SPIE, and my history of promoting women in science and developing mentoring programs - have given me the tools and experience to be a powerful steward and advocate for our community.

I have served the Society in a number of leadership roles and areas for more than 20 years, including on the Board of Directors and as the chair of the Symposia Committee and the Equity, Diversity and Inclusion Committee.

I have also previously held leadership roles nationally in Australia and within my university, including as: Head of the School of Mathematics and Physics at the University of Queensland, President of the Australian Optical Society, Regional Chair of the Australian Institute of Physics

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for the state of Queensland, and member of the Australian Academy of Science Council. I serve on several international Scientific Advisory Boards for large organisations, such as ICFO in Spain.

My background is in research, education and in the translation of novel findings in collaboration with industries. My particular area of expertise is in quantum science and biophotonics, both in basic research and applications. I have a history of engaging between science and industry to promote the translation of basic research toward commercialisation.

Throughout my career, I have actively promoted equity, diversity and inclusion, developing programs that led to vast improvements both at the University of Queensland and the Australian Academy of Science, where I am a fellow. Until last year, I co-chaired the Academy's working group for equity, diversity and inclusion.

As Australia's first female professor of physics, I have had a particular interest in promoting and developing mentoring programs for women in science. These activities were recognised when I was awarded one of Australia's highest honours, as an Officer of the Order of Australia, for distinguished service to: laser physics and nano-optics as a researcher, mentor and academic, the promotion of educational programs, and women in science.

If elected as Vice President, I will work with SPIE staff and members to expand our position as a world-leading optics and photonics society, connecting research, industry and markets, and combining the newest trends in scientific endeavours and their applications. I will focus on expanding the Society's reach internationally and into new industries, and on fostering new talent and skills, with a commitment to increasing diversity and inclusion in all our activities.

I would be honoured to receive your support and your vote.