

## LUIZ DAVIDOVICH - CURRICULUM VITÆ - October 2024

### • PERSONAL DATA:

- *Place of Birth:* Rio de Janeiro (Brazil)
- *Citizenship:* Brazilian
- *Work Addresses:*
  - Instituto de Física, Universidade Federal do Rio de Janeiro (Emeritus Professor)  
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21941-972 Rio de Janeiro, RJ – Brazil  
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### • EDUCATIONAL BACKGROUND

- B. Sc. at PUC-Rio.
- Ph. D. at the University of Rochester (Advisor: Prof.H.M. Nussenzweig).

### • AWARDS

- Grand-Cross of the National Order of Scientific Merit, awarded by the President of Brazil, 2000.
- 2001 Physics Prize, Third World Academy of Sciences (Trieste, Italy).
- Brazilian National Prize of Science and Technology “Admiral Alvaro Alberto”, 2010.
- Tamandare Medal, awarded by the Brazilian Navy, 2010.
- Fellow of the Optical Society of America (2009).
- Fellow of the American Physical Society (2014)
- Fellow of the Hagler Institute for Advanced Study, Texas A&M University, Texas, USA, for the period 2019-2021.

### • MEMBERSHIP IN ACADEMIES OF SCIENCE

- Member of the Brazilian Academy of Sciences – 1995.

- Member of The World Academy of Sciences (TWAS) – 2003.
- Foreign Member of the USA National Academy of Sciences – 2006.
- Foreign Member of the Chinese Academy of Sciences – 2021.
- Foreign Member of the European Academy of Sciences – 2021.

● **FORMER POSITIONS**

- Assistant Professor at the Institut für Theoretische Physik, ETH - Zurich, 1976-1977.
- Professor at PUC-Rio - 1977-1994.
- Professor at the Universidade Federal do Rio de Janeiro - From 1994.
- Visiting Scholar, Laboratoire Kastler-Brossel de l'École Normale Supérieure, Paris: September 1986 - July 1987, January-March 1991, February 1994, July 1995, January-February 1997, January-February 2001, November 2001-January 2002.
- Visiting Scholar, Center for Advanced Studies of the University of New Mexico, Albuquerque, New Mexico: January-February 1989, September 1991-May 1992, February 1998.
- Visiting Scholar, Max-Planck Institute für Quantenoptik, Garching, July-August 1989.
- Visiting Scholar, Service de Physique Atomique, Centre d'Énergie Atomique de Saclay, Saclay, April-August 1991.
- Visiting Scholar, Institute of Theoretical Physics, University of California at Santa Barbara, California, USA, November-December 1996, and August-October 2001.
- Visiting Scholar, Isaac Newton Institute, University of Cambridge, England, July 1999.
- Visiting Scholar, Université de Paris VI, January-February 2001, and June 2005.
- Visiting Scholar, University of Texas A&M, College Station, Texas, USA, February 2006.
- Visiting Scholar, Max-Planck Institute für Physik komplexer Systeme, Dresden, Germany, July 2006.

- Visiting Scholar, University of Freiburg, Germany, July 2008.
- Visiting Scholar, Weizmann Institute, Israel, August 2008.
- Visiting Scholar, ICFO (Institute of Photonic Sciences), Barcelona, Spain, July 2009.
- Visiting Scholar, University of Texas A&M, College Station, Texas, USA, February 2010.
- Lecturer at College de France, Paris, France, February 2011 and February 2016.
- Fellow of the Hagler Institute for Advanced Study, Texas A&M University, College Station, Texas, USA, from September 2019 to August 2021.
- Part-time Research Professor, Institute for Quantum Science and Engineering, Texas A&M University, College Station, Texas, USA, from 2021 to 2024.

#### ● SUPERVISION OF THESES

- Hélio Rochlin, “*Quantum Theory of Laser Radiation Scattering by Electrons in Magnetic Fields*”, M. Sc., 1981.
- Jean Claude Garreau, “*Atomic Ionization in Intense Laser Fields*”, M. Sc., 1985.
- Ricardo Horowicz, “*Transverse Effects and Fluctuations in Optical Bistability*”, Ph. D., 1985.
- Carlos Renato de Carvalho, “*Quantum Fluctuations in Dispersive Optical Bistability*”, M. Sc., 1985.
- Mauro Fernandes Pereira Jr., “*Photon Echoes in Alkaline Cyanides*”, M. Sc., 1985.
- Ricardo Toddling, “*Ionization by Laser Fields: Study of a One-Dimensional Model*”, M. Sc., 1986.
- Paulo Américo Maia Neto, “*Quantum Theory of the Two-Photon Micromaser: The Non-Degenerate Case*”, M. Sc., 1988.
- Antonio Zelaquett Khoury, “*Role of Pumping Statistics in Micromasers*”, M. Sc., 1990.
- Paulo Alberto Nussenzveig, “*Theory of the Correlated Emission Laser*”, M. Sc., 1990.

- Paulo Américo Maia Neto, “*Theory of Two-Photon Lasers and Masers: The Non-degenerate Case*”, Ph. D., 1991.
- Carlos Renato Carvalho, “*Singularities in the Starting Times of Micromasers and Lamb-dip effects in Lasers with Saturable Absorbers*”, Ph. D., 1991.
- Sérgio Mendes Dutra, “*Squeezed Light Generation in Two-Photon Correlated Emission Lasers*”, M. Sc., 1991.
- Márcia T. Fontenelle, “*Quantum Noise Reduction in Lasers with Injected Signal*”, Ph. D., 1994.
- Antônio Zelaquett Khoury, “*Subpoissonian Lasers and Masers*”, Ph. D., 1994.
- Luiz Guilherme Lutterbach, “*Production and Detection of Squeezed States in Cavities*”, M. Sc., 1995.
- Fábio M. Peixoto, “*Stochastic Schrödinger Equations applied to a Quantum Non-demolition Measurement*”, M. Sc., 1995.
- Tarso Benigno L. Kist, “*Stochastic Schrödinger Equations applied to Dissipative Systems*”, Ph. D., 1996.
- Dario Tavares de Castro Neto, “*Quenching of Phase Noise in Lasers with Injected Signal*”, M. Sc., 1996.
- Marcelo P. E. de França Santos, “*Dynamics of Statistical Properties of Electromagnetic Fields emerging from Cavities*”, M. Sc., 1997.
- Pérola Milman, “*Production, manipulation, and protection of quantum states and decoherence*”, Ph. D., 2000.
- Luiz Guilherme Lutterbach, “*Measuring the quantum state of harmonic systems*”, Ph. D., 2001.
- Marcelo P. E. de França Santos, “*Entangled states of atoms and photons: production, characterization, and applications*”, Ph. D., 2001.
- André Ricardo R. de Carvalho, “*Chaos, decoherence, quantum-state protection, and the quantum-classical transition in trapped ions*”, Ph. D., 2002.
- Dario Tavares de Castro Neto, “*Multistability in a trapped-ion system*”, Ph. D., 2003.
- Paulo Augusto Sá Pires Filho, “*Output coupling for trapped fermions*”, Ph. D., 2005.
- Alexandre Baron Tacla, “*Microscopic theory of decoherence in cavity QED*”, M. Sc., 2005.

- Miguel Justiniano Peralta Abanto, “*Constraints for the realization of Silicon-based quantum computers*,” Ph. D., 2006.
- Fernando da Rocha Vaz Bandeira de Melo, “*Entanglement, complementarity, and decoherence*”, Ph. D., 2006.
- Mario Leandro Aolita, “*The physics of entanglement: production, detection, and applications*,” Ph. D., 2008. Awarded the Brazilian Physical Society prize for the best thesis in physics, 2010.
- Malena Hohr-Meyll, “*Effects of the environment on the entanglement of quantum states*,” Ph. D., 2009.
- Rafael Chaves Souto Araújo, “*Entanglement under decoherence and its applications*,” Ph. D., 2010.
- Adriana Auyuanet, “*Dynamics of quantum correlations*”, Ph. D., 2010.
- Bruno Moura Escher, “*Parameter estimation in open quantum systems*”, Ph. D., 2011 (co-advisor: Ruynet Lima de Matos Filho).
- Osvaldo Jiménez Farías, “*Entanglement in qubit systems and its evolution under decoherence: Theory and experiment*,” Ph. D., 2012 (co-advisor: Paulo Henrique Souto Ribeiro).
- Camille Raymond Lombard Latune, “*Quantum limit for the measurement of a classical force probed by a noisy harmonic oscillator*,” Ph. D., 2014.
- Gabriel Bié Alves, “*Metrologia quântica e amplificação de valores fracos*”, Ph. D., 2015.

#### ● OTHER ACTIVITIES

- Secretary General of the Brazilian Physical Society, 1981–1983.
- Member of the Physics Committee of the Brazilian National Science Foundation, 1988–1989 and 1998–2000.
- Member of the Advisory Editorial Boards of *Optics Communications* (1994–2000) and *Journal of Optics B: Quantum and Semiclassical Optics* (1998–2001).
- Associate Editor of the *Journal of the Brazilian Association for the Advancement of Science* (1995–2000).
- Councillor of the Brazilian Association for the Advancement of Science, 1993–1995.

- Councillor of the Brazilian Physical Society, 1997-2001, 2003-2007, and 2009-2013.
- Member of the Editorial Board of the UNICAMP Publishing House, 2002-2004.
- Member of the Editorial Board of the *Annals of the Brazilian Academy of Sciences*, 2003-2010.
- Head of the *Brazilian Millenium Institute for Quantum Information* (involving 12 institutions in Brazil), from December 2001 to April 2006.
- Director of the Brazilian Academy of Sciences, 2004-2007, 2007-2010, 2010-2013, and 2013-2016.
- Member of the Editorial Board of *Physical Review A*, January 2005 – December 2009.
- Member of the Editorial Board of *New Journal of Physics*, 2015-2017.
- Member of the Deliberative Council of the Brazilian National Research Foundation (CNPq), 2005-2009.
- Member of the Scientific Council of the International Institute of Physics (Natal, Brazil), 2010-2013
- Member of the Advisory Editorial Board of *Journal of Physics B: Atomic, Molecular, and Optical Physics*, from January 2008 to December 2011.
- Member of the Higher Council of CAPES (Division of the Ministry of Education of Brazil), 2008-2014 and 2017 to present.
- Member of the Administrative Council of IMPA (Institute for Pure and Applied Mathematics), since 2008; head of the Administrative Council of IMPA from 2013 to 2018.
- Member of the Administrative Council of the National Center for Research on Energy and Materials (CNPEM), 2011-2014.
- Member of the board of the InterAcademy Council (IAC), 2011-2014.
- Member of the Executive Board of the International Council for Science (ICSU), 2011-2014.
- Member of the Executive Committee of the InterAcademy Partnership (IAP) from 2016 to 2018.
- Member of the International Committee for Scientific and Strategic Orientation of College de France, for the period 2012-2016 and 2017-2021.

- President of the Brazilian Academy of Sciences, May 2016 to May 2019, and May 2019 to May 2022.
- Secretary-General of The World Academy of Sciences for the Advancement of Science in the Developing World (TWAS), January 2019 to January 2023.
- Member of Optical Society of America Prize Committees: Robert E. Hopkins Leadership Award (2011 and 2012, Chair in 2012) Herbert Walther Award (2010 and 2011 –Chair in 2011) and Charles Townes Award (2018-2020, Chair in 2019).
- Member of the Editorial Board of Physical Review Letters, since 2022.
- Member of the American Institute of Physics Prize Committees Compton Award (2023) and Tate Award (2024).