

Valerio Scarani

Centre for Quantum Technologies and Department of Physics
National University of Singapore
3 Science Drive 2, Singapore 117543
Office phone: +65 6516 2813
E-mail: physv@nus.edu.sg; valerio.scarani@gmail.com
<https://sites.google.com/site/valeriosgroup/home>

PERSONAL

Birth date: 31 March 1972
Nationality: Italian and Swiss.
Language skills: fluent in Italian, French, English and Spanish (Castillano); average German.

CAREER PATH

2011-present	Full professor with tenure, National University of Singapore
2007-2011	Associate professor, National University of Singapore
2003-2007	Maître assistant, Group of Applied Physics, University of Geneva
2000-2003	Post-doc, Group of Applied Physics, University of Geneva
1996-2000	Research Assistant, Ecole Polytechnique Fédérale de Lausanne

EDUCATION

2000	Ph.D., Ecole Polytechnique Fédérale de Lausanne NMR Studies in Magnetic Nanostructures, Advisor: Prof. Jean-Philippe Ansermet
1996	Diplôme d'ingénieur physicien, Ecole Polytechnique Fédérale de Lausanne

RESEARCH INTERESTS

Theoretical research in quantum information science:

- Bell Non-Locality: Foundations, and Device-independent certification
- Quantum optics: theory, and collaboration with experimental groups
- Quantum thermodynamics and foundations of statistical physics
- Past: Quantum key distribution

OVERVIEW OF ACHIEVEMENTS

Updated lists of: publications, teaching duties, supervision of graduate and undergraduate students, participation and organization of conferences; are available on demand, or downloadable from <https://sites.google.com/site/valeriosgroup/group-members/valerio-scarani-homepage>.

Peer-reviewed articles:

- Web of Science: 168, H-index 52 (<https://publons.com/researcher/2718990/valerio-scarani/>)

Selected items:

- 2019: Book *Bell Nonlocality* in Oxford Graduate Textbooks.
- July 2017 to June 2020: Deputy Head (Education) of the Dept of Physics of NUS
- 2016: Main local organizer of the international conference QCMC2016
- May 2013 to May 2018: lead PI of a 10M grant on quantum randomness, with 11 other PIs.
- July 2010 to Dec 2013: Section editor of Journal of Physics A: Mathematical and Theoretical
- 2010: Book *Six Quantum Pieces*, an original pre-university course in quantum mechanics.
- 2003: Popular book *Initiation à la physique quantique* (translated into English, German, Spanish)

GRANTS

- Templeton grant “Many-box locality as a physical principle”: 147,200 SGD for October 2016 to September 2018.
- Singapore National Research Fund Competitive Research Programme, Award No. NRF-CRP12-2013-03 “Hybrid Quantum Technologies”: 4,325,456 SGD for July 2014 to June 2017 (The grant involves 4 PIs. Lead PI: Christian Kurtsiefer).
- Singapore Ministry of Education Tier 3 Fund MOE2012-T3-1-009 “Random numbers from quantum processes”: 9,931,731 SGD for May 2013 to Apr 2018 (Lead PI, 11 other PIs).
- Research grants from the core funding of CQT:
 - 1,148,200 SGD for Jan 2013 to Mar 2020
 - 1,151,000 SGD for Jan 2011 to Dec 2013
 - 891,400 SGD for Jan 2008 to Dec 2010

AWARDS

- Paul Ehrenfest Award 2017 (IQOQI, Vienna)
- Provost Chair for 2012-2014 (NUS)
- Faculty Outstanding Scientist Award 2012 (NUS)
- IPS World Scientific Medal 2010 (Singapore)
- Faculty Young Investigator Award 2010 (NUS)
- Singapore National Science Award 2008 (A*Star, Singapore)
- Prix Haenny 2003 (Association Vaudoise des Chercheurs en Physique, Lausanne)

SELECTED PUBLICATIONS

- V. Scarani, A. Acín, N. Gisin, G. Ribordy, Quantum cryptography protocols robust against photon number splitting attacks for weak laser pulses implementations, *Phys. Rev. Lett.* **92**, 057901 (2004)
- A. Acín, N. Brunner, N. Gisin, S. Massar, S. Pironio, V. Scarani, Device-independent security of quantum cryptography against collective attacks, *Phys. Rev. Lett.* **98**, 230501 (2007)
- V. Scarani, R. Renner, Quantum cryptography with finite resources: unconditional security bound for discrete-variable protocols with one-way postprocessing, *Phys. Rev. Lett.* **100**, 200501 (2008)
- V. Scarani, H. Bechmann-Pasquinucci, N.J. Cerf, M. Dušek, N. Lütkenhaus, M. Peev, The security of practical quantum key distribution, *Rev. Mod. Phys.* **81**, 1301 (2009)
- M. Pawłowski, T. Paterek, D. Kaszlikowski, V. Scarani, A. Winter, M. Żukowski, Information causality as a physical principle, *Nature* **461**, 1101 (2009)
- J.-D. Bancal, S. Pironio, A. Acin, Y.-C. Liang, V. Scarani, N. Gisin, Quantum nonlocality based on finite-speed superluminal influences leads to signaling, *Nature Physics* **8**, 867 (2012)
- T.H. Yang, T. Vertesi, J.-D. Bancal, V. Scarani, M. Navascués, Robust and versatile black-box certification of quantum devices, *Phys. Rev. Lett.* **113**, 040401 (2014)
- A. Colandangelo, K.T. Goh, V. Scarani, All pure bipartite entangled states can be self-tested, *Nature Communications* **8**, 15485 (2017)
- G. Maslennikov, S. Ding, R. Hablutzel, J. Gan, A. Roulet, S. Nimmrichter, J. Dai, V. Scarani, D. Matsukevich, Quantum absorption refrigerator with trapped ions, *Nature Comm.* **10**, 202 (2019)
- V. Scarani, *Bell Nonlocality* (Oxford University Press, Oxford, 2019)