

STEFANO CHESI

CURRICULUM VITAE

CONTACT INFORMATION

Beijing Computational Research Center (CSRC)

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Beijing 100093, China

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EDUCATION

- 05/2007 Ph.D. in Theoretical Condensed Matter Physics.
Purdue University; *Effects of structural spin-orbit coupling
in two-dimensional electron and hole liquids.*
Advisor: Prof. Gabriele F. Giuliani.
- 07/2002 Laurea Degree (M.Sc.).
Scuola Normale Superiore and University of Pisa; *Electro-
magnetic Induced Transparency in excitonic resonances.*
Advisor: Prof. Giuseppe C. La Rocca.

RESEARCH POSITIONS

- 08/2020– Associate Professor, Beijing CSRC, China.
- 05/2014–08/2020 Assistant Professor, Beijing CSRC, China.
- 05/2013–05/2014 Research Scientist, RIKEN, Japan.
- 01/2011–04/2013 Research Associate with Prof. William A. Coish.
Department of Physics, McGill University, Canada.
- 07/2007–01/2011 Postdoc with Prof. Daniel Loss.
Physics Department, University of Basel, Switzerland.

AWARDS

08/2018	Italian National Habilitation for Associate Professor in Theoretical Solid State Physics (sector 02/B2 - second level).
05/2013	Tenure-track Professor position at the International Center for Quantum Materials of Peking University (offered).
05/2011–05/2012	Richard H. Tomlinson Postdoctoral Fellowships, McGill University, \$30,000.
Spring 2007	Lark-Horovitz Award, Purdue University, for outstanding research accomplishments as a Physics graduate student.
Summer 2006	Grodzins Summer Research Award, Purdue University.
Spring 2006	Edward S. Akeley Award for theoretical Physics at Purdue University.
08/2002–08/2004	Andrews Fellowship, Purdue University, \$18,000 per year.
10/1997–10/2001	Scholarship at the Scuola Normale Superiore, Pisa, Italy
Summer 1997	Honourable Mention, the 28th International Physics Olympiad.

FUNDING

01/2022–12/2023	Research Fund for International Excellent Young Scientists, 800k CNY (approx. \$127k), PI.
01/2020–12/2023	NSFC Project Grant, 640k CNY (approx. \$91k), PI.
01/2018–12/2020	Member of an International Cooperation and Exchange Program between the Ministro degli Affari Esteri e della Cooperazione Internazionale (MAECI) and the National Natural Science Foundation of China (NSFC), 1.8M CNY (approx. \$263k). PIs: Prof. Maurizio Artoni, Università di Brescia, and Prof. Jin-Hui Wu, Northeast Normal University.
01/2018–12/2019	NSFC Research Fund for International Young Scientists, 300k CNY (approx. \$45k), PI.
07/2018–06/2019	Member of a National Key Research and Development Program of China, 27.36M CNY (approx. \$4.16M). PI: Prof. Jianqiang You, Beijing CSRC.
01/2016–12/2019	NSFC Project Grant, 620k CNY (approx. \$90k), PI.
11/2013–11/2016	1000 Young Talents Program. Funding: 3M CNY (approx. \$490k), PI.

PUBLICATIONS

59. *Quantum dynamics of Gaudin magnets*,
W.-B. He, [S. Chesi](#), H.-Q. Lin, and X.-W. Guan,
accepted in [Commun. Theor. Phys.](#) (2022). [[arXiv:2201.01025](#)]
58. *Enhancing photon entanglement in a three-mode optomechanical system via imperfect phonon measurements*,
J. Qiu, D. Chen, Y.-D. Wang, and [S. Chesi](#),
[Commun. Theor. Phys.](#) **74**, 055105 (2022).
57. *Nonlinear interaction effects in a three-mode cavity optomechanical system*, J. Qiu, L.-J. Jin, Z.-Y. Peng, [S. Chesi](#), and Y.-D. Wang,
[Phys. Rev. A](#) **105**, 033514 (2022). [[arXiv:2004.01413](#)]
56. *Geometric manipulation of a decoherence-free subspace in atomic ensembles*, D. Chen, S. Luo, Y.-D. Wang, [S. Chesi](#), and M.-S. Choi,
[Phys. Rev. A](#) **105**, 022627 (2022). [[arXiv:2103.07907](#)]
55. *Determination of the critical exponents in dissipative phase transitions: coherent anomaly approach*, J. Jin, W.-B. He, F. Iemini, D. Ferreira, Y.-D. Wang, [S. Chesi](#), and R. Fazio,
[Phys. Rev. B](#) **104**, 214301 (2021). [[arXiv:2103.07255](#)]
54. *Probing Kondo spin fluctuations with scanning tunneling microscopy and electron spin resonance*, Y. Fang, [S. Chesi](#), and M.-S. Choi,
[Phys. Rev. B](#) **104**, 195122 (2021). [[arXiv:2108.11243](#)]
53. *Lower and upper bounds of quantum battery power in multiple central spin systems*, L. Peng, W.-B. He, [S. Chesi](#), H.-Q. Lin, and X.-W. Guan,
[Phys. Rev. A](#) **103**, 052220 (2021). [[arXiv:2103.07828](#)]
52. *Superradiantlike dynamics of nuclear spins by nonadiabatic electron shuttling*, Yinan Fang, Ying-Dan Wang, Rosario Fazio, and [S. Chesi](#),
[Phys. Rev. B](#) **103**, 155301 (2021). [[arXiv:2002.01219](#)]
51. *Reservoir-engineered entanglement in an unresolved-sideband optomechanical system*, Y.-Y. Wang, R. Zhang, [S. Chesi](#), and Y.-D. Wang,
[Commun. Theor. Phys.](#) **73**, 055105 (2021).
50. *Nonequilibrium phases and phase transitions of the XY model*, T. O. Puel, [S. Chesi](#), S. Kirchner, and Pedro Ribeiro,
[Phys. Rev. B](#) **103**, 035108 (2021). [[arXiv:2009.06845](#)]
49. *Time crystals in the driven transverse field Ising model under quasiperiodic modulation*, P. Liang, R. Fazio, and [S. Chesi](#),
[New J. Phys.](#) **22**, 125001 (2020). [[arXiv:2011.07298](#)]

48. *Phase diagram of the interacting persistent spin-helix state*, H. Liu, W. E. Liu, [S. Chesi](#), R. Joynt, and D. Culcer, *Phys. Rev. B* **102**, 205410 (2020). [[arXiv:2002.10036](#)]
47. *Pseudospin-electric coupling for holes beyond the envelope-function approximation*, P. Philippopoulos, [S. Chesi](#), D. Culcer, and W. A. Coish, *Phys. Rev. B* **102**, 075310 (2020). [[arXiv:2005.08821](#)]
46. *Resilience of the superradiant phase against A^2 effects in the quantum Rabi dimer*, Y. Wang, M. Liu, W.-L. You, [S. Chesi](#), H.-G. Luo, and H.-Q. Lin, *Phys. Rev. A* **101**, 063843 (2020). [[arXiv:2003.01325](#)]
45. *First-principles hyperfine tensors for electrons and holes in GaAs and silicon*, P. Philippopoulos, [S. Chesi](#), and W. A. Coish, *Phys. Rev. B* **101**, 115302 (2020). [[arXiv:2001.05963](#)]
44. *Hole spin echo envelope modulations*, P. Philippopoulos, [S. Chesi](#), J. Salfi, S. Rogge, and W. A. Coish, *Phys. Rev. B* **100**, 125402 (2019). [[arXiv:1906.11953](#)]
43. *Mixed-Order Symmetry-Breaking Quantum Phase Transition far from Equilibrium*, T. O. Puel, [S. Chesi](#), S. Kirchner, and P. Ribeiro, *Phys. Rev. Lett.* **122**, 235701 (2019). [[arXiv:1809.07219](#)]
42. *Exact quantum dynamics of XXZ central spin problems*, W.-B. He, [S. Chesi](#), H.-Q. Lin, and X.-W. Guan, *Phys. Rev. B* **99**, 174308 (2019). [[arXiv:1810.03012](#)]
41. *Strong mechanical squeezing in an unresolved-sideband optomechanical system*, R. Zhang, Y. Fang, Y.-Y. Wang, [S. Chesi](#), and Y.-D. Wang, *Phys. Rev. A* **9**, 043805 (2019). [[arXiv:1812.01242](#)]
40. *Studies on the Rabi Model*, H. Q. Lin, M. X. Liu, [S. Chesi](#), and H. G. Luo, *J. Phys.: Conf. Ser.* **1163**, 012003 (2019).
39. *Enhanced nonlinear interaction effects in a four-mode optomechanical ring*, L.-J. Jin, J. Qiu, [S. Chesi](#), and Y. D. Wang, *Phys. Rev. A* **98**, 033836 (2018). [[arXiv:1805.06166](#)]
38. *Nearly deconfined spinon excitations in the square-lattice spin-1/2 Heisenberg antiferromagnet*, H. Shao, Y.-Q. Qin, S. Capponi, [S. Chesi](#), Z.-Y. Meng, and A. W. Sandvik, *Phys. Rev. X* **7**, 041072 (2017). [[arXiv:1708.03232](#)]
37. *A generalized Stoner criterion and versatile spin ordering in two-dimensional spin-orbit coupled electron systems*, W. E. Liu, [S. Chesi](#), D. Webb, U. Zuelicke, R. Winkler, R. Joynt, and D. Culcer, *Phys. Rev. B* **96**, 235425 (2107). [[arXiv:1708.01971](#)]

36. *Universal scaling and critical exponents of the anisotropic quantum Rabi model*, M. Liu, [S. Chesi](#), Z.-J. Ying, X. Chen, H.-G. Luo, and H.-Q. Lin *Phys. Rev. Lett.* **119**, 220601 (2107). (Editors' suggestion). [[arXiv:1702.06641](#)]
35. *Optimization of STIRAP-like state transfer under dissipation*, Y.-D. Wang, R. Zhang, X.-B. Yan, and [S. Chesi](#), *New J. Phys.* **19**, 093016 (2017). [[arXiv:1603.01701](#)]
34. *2π -flux loop semimetals*, L. Li, [S. Chesi](#), C. Yin, and Shu Chen *Phys. Rev. B* **96**, 081116(R) (2017). [[arXiv:1705.02799](#)]
33. *In-plane ferromagnetic instability in a two-dimensional electron liquid in the presence of Rashba spin-orbit coupling*, [S. Chesi](#) and G. F. Giuliani, p. 61-71 in *No-nonsense Physicist, an Overview of Gabriele Giuliani's Work and Life*, ed. M. Polini, G. Vignale, V. Pellegrini, J. K. Jain (Springer, 2016).
32. *Spin-dependent magnetic focusing*, Y. Lyanda-Geller, L. P. Rokhinson, and [S. Chesi](#), p. 81-93 in *No-nonsense Physicist, an Overview of Gabriele Giuliani's Work and Life*, ed. M. Polini, G. Vignale, V. Pellegrini, J. K. Jain (Springer, 2016).
31. *Dephasing due to nuclear spins in large-amplitude electric dipole spin resonance*, [S. Chesi](#), L.-P. Yang, and D. Loss, *Phys. Rev. Lett.*, **116**, 066806 (2016). [[arXiv:1508.06894](#)]
30. *Maximizing the purity of a qubit evolving in an anisotropic environment*, X. J. Wang, [S. Chesi](#), and W. A. Coish, *Phys. Rev. B* **92**, 115424 (2015). [[arXiv:1407.8340](#)]
29. *Theory of box-model hyperfine couplings and transport signatures of long-range nuclear-spin coherence in a quantum-dot spin valve*, [S. Chesi](#) and W. A. Coish, *Phys. Rev. B* **91**, 245306 (2015). [[arXiv:1503.03645](#)]
28. *Entanglement concentration with strong projective measurement in an optomechanical system*, W. Maimaiti, Z. Li, [S. Chesi](#), and Y.-D. Wang, *Sci. China Phys. Mech.* **58**, 050309 (2015).
27. *Diabolical points in multi-scatterer optomechanical systems*, [S. Chesi](#), Y.-D. Wang, and J. Twamley, *Scientific Reports* **5**, 7816 (2015). [[arXiv:1402.0926](#)]
26. *Bipartite and tripartite output entanglement in three-mode optomechanical systems*, Y.-D. Wang, [S. Chesi](#), and A. A. Clerk, *Phys. Rev. A* **91**, 013807 (2015). [[arXiv:1406.7829](#)]

25. *Single-spin manipulation in a double quantum dot in the field of a micro-magnet*,
S. Chesi, Y.-D. Wang, J. Yoneda, T. Otsuka, S. Tarucha, and D. Loss,
Phys. Rev. B **90**, 235311 (2014). [[arXiv:1405.7618](#)]
24. *Characterization of spin-orbit interactions of GaAs heavy holes using a quantum point contact*,
F. Nichele, S. Chesi, S. Hennel, A. Wittmann, C. Gerl, W. Wegscheider,
D. Loss, T. Ihn, and K. Ensslin,
Phys. Rev. Lett. **113**, 046801 (2014) (Editors' suggestion). [[arXiv:1405.2981](#)]
23. *Controlling hole spins in quantum dots and wells*,
S. Chesi, X. J. Wang, and W. A. Coish,
Lecture notes for Course CLXXXIII *Quantum Spintronics and Related Phenomena* Int. School of Physics "Enrico Fermi", Varenna, June 2012,
Eur. Phys. J. Plus **129**, 86 (2014) [[arXiv:1302.5470](#)]
22. *Vortex Loops and Majorana Fermions*,
S. Chesi, A. Jaffe, D. Loss, and F. L. Pedrocchi,
J. Math. Phys. **54**, 112203 (2013). [[arXiv:1305.6270](#)]
21. *Spin-echo dynamics of a heavy hole in a quantum dot*,
X. J. Wang, S. Chesi, and W. A. Coish,
Phys. Rev. Lett. **109**, 237601 (2012). [[arXiv:1208.4898](#)]
20. *Majorana states in inhomogeneous spin ladders*,
F. L. Pedrocchi, S. Chesi, S. Gangadharaiah, and D. Loss,
Phys. Rev. B **86**, 205412 (2012). [[arXiv:1204.3044](#)]
19. *Quasiparticle velocities in two-dimensional electron/hole liquids with spin-orbit coupling*, D. Aasen, S. Chesi, and W. A. Coish,
Phys. Rev. B **85**, 075321 (2012). [[arXiv:1110.6661](#)]
18. *Physical solutions of the Kitaev honeycomb model*,
F. L. Pedrocchi, S. Chesi, and D. Loss,
Phys. Rev. B **84**, 165414 (2011). [[arXiv:1105.4573](#)]
17. *Anomalous spin-resolved point-contact transmission of holes due to cubic Rashba spin-orbit coupling*,
S. Chesi, G. F. Giuliani, L. P. Rokhinson, L. N. Pfeiffer, and K. W. West,
Phys. Rev. Lett. **106**, 236601 (2011). [[arXiv:1011.2676](#)]
16. *High density limit of the two-dimensional electron liquid with Rashba spin-orbit coupling*, S. Chesi and G. F. Giuliani,
Phys. Rev. B **83**, 235309 (2011). [[arXiv:1008.3729](#)]
15. *Two exact properties of the perturbative expansion for the two-dimensional electron liquid with Rashba or Dresselhaus spin-orbit coupling*,
S. Chesi and G. F. Giuliani,
Phys. Rev. B **83**, 235308 (2011). [[arXiv:1008.2227](#)]

14. *Plasmon mass and Drude weight in strongly spin-orbit-coupled two-dimensional electron gases*,
A. Agarwal, S. Chesi, T. Jungwirth, J. Sinova, G. Vignale, and M. Polini,
Phys. Rev. B **83**, 115135 (2011). [[arXiv:1010.5169](#)]
13. *Quantum memory coupled to cavity modes*,
F. L. Pedrocchi, S. Chesi, and D. Loss,
Phys. Rev. B **83**, 115415 (2011). [[arXiv:1011.3762](#)]
12. *RKKY interaction in a disordered two-dimensional electron gas with Rashba and Dresselhaus spin-orbit couplings*, S. Chesi and D. Loss,
Phys. Rev. B **82**, 165303 (2010). [[arXiv:1007.3506](#)]
11. *Self-Correcting Quantum Memory in a Thermal Environment*,
S. Chesi, B. Röthlisberger, and D. Loss,
Phys. Rev. A **82**, 022305 (2010). [[arXiv:0908.4264](#)]
10. *One-step multi-qubit GHZ state generation in a circuit QED system*,
Y.-D. Wang, S. Chesi, D. Loss, and C. Bruder,
Phys. Rev. B **81**, 104524 (2010) (Editors' suggestion). [[arXiv:0911.1396](#)]
9. *Thermodynamic stability criteria for a quantum memory based on stabilizer and subsystem codes*, S. Chesi, D. Loss, S. Bravyi, and B. M. Terhal,
New J. Phys. **12**, 025013 (2010). [[arXiv:0907.2807](#)]
8. *Quantum Computing with Electron Spins in Quantum Dots*,
R. A. Žák, B. Röthlisberger, S. Chesi, and D. Loss,
p. 41 in *Proceedings of the International School of Physics "Enrico Fermi"*,
ed. B. Deveaud-Plédran, A. Quattropani, and P. Schwendimann (IOS
Press, Amsterdam, 2009), reproduced in
La Rivista del Nuovo Cimento **33**, 7 (2010). [[arXiv:0906.4045](#)]
7. *Momentum dependence of the spin susceptibility in two dimensions: Non-analytic corrections in the Cooper channel*,
S. Chesi, R. A. Žák, P. Simon, and D. Loss,
Phys. Rev. B **79**, 115445 (2009). [[arXiv:0811.0996](#)]
6. *Quantum Hall ferromagnetic states and spin-orbit interactions in the fractional regime*, S. Chesi and D. Loss,
Phys. Rev. Lett. **101**, 146803 (2008). [[arXiv:0804.3332](#)]
5. *Exchange energy and generalized polarization in the presence of spin-orbit coupling in two dimensions*, S. Chesi and G. F. Giuliani,
Phys. Rev. B **75**, 155305 (2007). [[arXiv:cond-mat/0701355](#)]
4. *Correlation energy in a spin polarized two dimensional electron liquid in the high density limit*, S. Chesi and G. F. Giuliani,
Phys. Rev. B **75**, 153306 (2007). [[arXiv:cond-mat/0611726](#)]

3. *On the 2D electron liquid in the presence of spin-orbit coupling*,
G. F. Giuliani and S. Chesi, p. 269 in *Highlights in the quantum theory of condensed matter*, ed. F. Beltram, S. Settis (Springer, 2005).
2. *Exciton-biexciton quantum coherence and polaritonic stop-band transparency in CuCl*,
S. Chesi, M. Artoni, G. C. La Rocca, F. Bassani, and A. Mysyrowicz,
Phys. Stat. Sol. (c) **1**, 497 (2004).
1. *Polaritonic stop-band transparency via exciton-biexciton coupling in CuCl*,
S. Chesi, M. Artoni, G. C. La Rocca, F. Bassani, and A. Mysyrowicz,
Phys. Rev. Lett. **91**, 057402 (2003).

INVITED TALKS AND SEMINARS

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|------------|---|
| 05/25/2022 | <i>First-principles hyperfine tensors and pseudospin-electric coupling for holes in GaAs and Silicon</i> , 2022 MRS Spring Meeting & Exhibit (Virtual Meeting). |
| 03/09/2021 | <i>Superradiant-like dynamics of nuclear spins induced by electron shuttling</i> , CEMS Topical Meeting on Recent Advances in Semiconductor Qubits, RIKEN, Wako, Japan (Online). |
| 12/12/2019 | <i>Mixed-Order Symmetry-Breaking Quantum Phase Transition Far from Equilibrium</i> , Sichuan University, Chengdu, China. |
| 11/23/2019 | <i>Mixed-Order Symmetry-Breaking Quantum Phase Transition Far from Equilibrium</i> , Workshop on Quantum Simulations and Quantum Devices (QSQD 2019), ITP-CAS, China. |
| 06/25/2019 | <i>Superradiant-like transport by electron shuttling on a nuclear-spin island</i> , Scuola Normale Superiore, Pisa, Italy. |
| 03/25/2019 | <i>Quantum phase transition in the anisotropic Rabi model</i> , University of Electronic Science and Technology of China. |
| 12/13/2018 | <i>Quantum phase transition in the anisotropic Rabi model</i> , Northeast Normal University, Changchun, China. |
| 09/13/2018 | <i>Quantum phase transition in the anisotropic Rabi model</i> , The 4th School and Conference on spin-based Quantum Information Processing (Spin Qubit 4), Konstanz, Germany. |
| 12/06/2017 | <i>Quantum phase transition in the anisotropic Rabi model</i> , Workshop on the Rabi Model, Strong Light-Matter Interactions and Other Quantum Phenomena in CQED Platforms, Beijing Computational Science Research Center, China. |

- 11/22/2017 *Differential instabilities and unconventional ferromagnetism of a spin-orbit coupled 2D electron liquid*, Workshop on Many-Body Theory of Quantum Electron Liquids, in memoriam Gabriele F. Giuliani, Scuola Normale Superiore, Pisa, Italy.
- 10/30/2017 *Differential instabilities and unconventional ferromagnetism of a spin-orbit coupled 2D electron liquid*, Gordon Godfrey Workshop, University of New South Wales, Sydney, Australia.
- 05/26/2017 *Optimization of STIRAP-based state transfer under dissipation*, QPQI-5, Beijing Computational Science Research Center, China.
- 02/16/2017 *Quantum phase transition in the anisotropic Rabi model*, International Center for Theoretical Physics (ICTP), Trieste, Italy.
- 12/05/2016 *Coupled dynamics of a single electronic spin and nuclear-spin environment in semiconductor quantum dots*, 2016 XMAS Theoretical Physics Symposium, Victoria University of Wellington, New Zealand.
- 10/25/2016 *Dephasing due to nuclear spins in large-amplitude electric dipole spin resonance*, CICQS 2016, Evora, Portugal.
- 09/08/2016 *Dephasing due to nuclear spins in large-amplitude electric dipole spin resonance*, University of New South Wales, Sydney, Australia.
- 08/30/2016 *Dephasing due to nuclear spins in large-amplitude electric dipole spin resonance*, Victoria University of Wellington, New Zealand.
- 08/05/2016 *Dephasing due to nuclear spins in large-amplitude electric dipole spin resonance*, ICPS 2016, Beijing, China.
- 07/25/2016 *Dephasing due to nuclear spins in large-amplitude electric dipole spin resonance*, Academy of Mathematics and System Science, CAS, Beijing, China.
- 06/01/2016 *Dephasing due to nuclear spins in large-amplitude electric dipole spin resonance*, Dalian University of Technology, China.
- 04/05/2016 *Dephasing due to nuclear spins in large-amplitude electric dipole spin resonance*, ICTP, Trieste, Italy.
- 09/19/2015 *Transport signatures of long-range nuclear-spin coherence in a quantum-dot spin valve*, IWQICD 2015, Bilbao, Spain.

- 08/25/2015 *Transport signatures of long-range nuclear-spin coherence in a quantum-dot spin valve*, SPINTECH VIII, Basel, Switzerland.
- 08/14/2015 *Quantum coherence in nanostructures*, HK-CSRC Forum, Beijing Computational Science Research Center, China.
- 06/25/2015 *Transport signatures of long-range nuclear-spin coherence in a quantum-dot spin valve*, McGill University, Montreal Canada.
- 06/02/2015 *Transport signatures of long-range nuclear-spin coherence in a quantum-dot spin valve*, Max-Planck-Institute for Quantum Optics, Garching, Germany.
- 04/20/2015 *Characterization of spin-orbit interactions of GaAs heavy holes using quantum point contacts*, Huazhong University of Science and Technology, Wuhan, China.
- 03/11/2015 *Characterization of spin-orbit interactions of GaAs heavy holes using quantum point contacts*, Renmin University, Beijing, China.
- 01/08/2015 *Spin coherent dynamics of GaAs heavy holes in quantum point contacts and quantum dots*, Central China Normal University, Wuhan, China.
- 12/05/2014 *Single-spin manipulation in a double quantum dot in the slanting field of a micromagnet*, Workshop on Quantum Metrology, Interaction, and Causal Structure, IIS, Tsinghua University, Beijing, China.
- 10/17/2014 *Characterization of spin-orbit interactions of GaAs heavy holes using quantum point contacts*, Institute of Physics, Beijing, China.
- 09/22/2014 *Single-spin manipulation via exchange interaction in a double quantum dot with micromagnet*, Congresso Nazionale SIF, Pisa, Italy.
- 09/17/2014 *Characterization of spin-orbit interactions of GaAs heavy holes using quantum point contacts*, Scuola Normale Superiore, Pisa, Italy.
- 08/08/2014 *Characterization of spin-orbit interactions of GaAs heavy holes using quantum point contacts*, Shanghai University, China.
- 07/24/2014 *Single-spin manipulation via exchange interaction in a double quantum dot with micromagnet*, KITPC program on Quantum Computing with Electron Spin Qubits, ITP-CAS, Beijing, China.

- 07/21/2014 *Diabolical points in an optomechanical system*, Summer workshop on micro/nanostructure optomechanical effects, Peking University, Beijing, China.
- 03/28/2014 *Single-spin manipulation via exchange interaction in a double quantum dot with micromagnet*, University of Tokyo, Japan.
- 05/20/2013 *Encoded qubits with generalized toric codes and Kitaev honeycomb models*, Institute for Interdisciplinary Information Sciences (IIIS) at Tsinghua University, Beijing, China.
- 04/10/2013 *Spin polarized transmission of holes in quantum point-contacts with strong spin-orbit coupling*, University of Basel, Switzerland.
- 02/16/2013 *Quantum spintronics and topologically protected spin models*, RIKEN Advanced Science Institute, Wako, Japan.
- 01/11/2013 *Spin polarized transmission of holes in quantum point-contacts with strong spin-orbit coupling*, Computational Science Research Center (CSRC), Beijing, China.
- 01/10/2013 *Spin polarized transmission of holes in quantum point-contacts with strong spin-orbit coupling*, Institute for Advanced Study at Tsinghua University (IASTU), Beijing, China.
- 11/29/2012 *Spin polarized transmission of holes in quantum point-contacts with strong spin-orbit coupling*, University of Florida, Gainesville, FL, USA.
- 11/19/2012 *Topological protection in generalized Kitaev honeycomb and toric code spin lattices*, IBM T. J. Watson Research Center, Yorktown Heights, NY, USA.
- 08/23/2012 *Physical solutions of the Kitaev honeycomb model*, Macquarie University, Sydney, Australia.
- 06/22/2012 *Spin polarized transmission of holes in quantum point-contacts with strong spin-orbit coupling*, Institute for Quantum Computing (IQC), Waterloo, ON, Canada.
- 03/16/2012 *Strongly spin-orbit coupled electron/hole liquids*, The University of New South Wales, Sydney, Australia.
- 02/17/2012 *Strongly spin-orbit coupled electron/hole liquids*, Concordia University, Montreal, QC, Canada.
- 02/06/2012 *Strongly spin-orbit coupled electron/hole liquids*, Carnegie Mellon University, Pittsburgh, PA, USA.

- 12/20/2011 *Physical solutions of the Kitaev honeycomb model*, ICTP, Trieste, Italy.
- 08/14/2011 *Theory of collective quantum effects in a Ge/Si core/shell nanowire quantum dot*, International Workshop on Silicon Quantum Electronics, Denver, CO, USA.
- 07/30/2011 *Anomalous spin-resolved point-contact transmission of holes due to cubic Rashba spin-orbit coupling*, IMR, Tohoku University, Sendai, Japan.
- 07/25/2011 *Anomalous spin-resolved point-contact transmission of holes due to cubic Rashba spin-orbit coupling*, Spintronics Days at UPV-EHU, Bilbao, Spain.
- 10/20/2010 *RKKY interaction in a disordered two-dimensional electron gas with Rashba and Dresselhaus spin-orbit couplings*, QSpICE workshop, Acquafredda di Maratea, Italy.
- 06/12/2010 *RKKY interaction in a disordered two-dimensional electron gas with Rashba and Dresselhaus spin-orbit couplings*, University of Basel, Switzerland.
- 04/12/2010 *A Self-Correcting Quantum Memory in a Thermal Environment*, Leeds University, UK (two-hours tutorial).
- 03/12/2010 *A Self-Correcting Quantum Memory in a Thermal Environment*, Purdue University, West Lafayette, IN, USA.
- 01/21/2010 *Stability of topological quantum memories in contact with a thermal environment*, QIP 2010, Zürich, Switzerland.
- 09/12/2009 *Quantum Hall ferromagnets and spin-orbit interactions in the fractional regime*, Final ESF FONE Conference, Miraflores de la Sierra, Madrid, Spain.
- 09/07/2009 *A Self-Correcting Quantum Memory in a Thermal Environment*, University of Basel, Switzerland.
- 06/30/2009 *Quantum Hall ferromagnets and spin-orbit interactions in the fractional regime*, ICTP Workshop, Sibiu, Romania.
- 04/07/2009 *Quantum Hall ferromagnets states and spin-orbit interactions in the fractional regime*, ETH Zürich, Switzerland.
- 06/12/2008 *Quantum Hall ferromagnets and spin-orbit interactions in the fractional regime*, University of Basel, Switzerland.
- 03/16/2007 *Spin-orbit coupling and lateral local confinement effects in quasi-two-dimensional systems*, SISSA-ISAS, Trieste, Italy.

03/12/2007	<i>Spin-orbit interactions in a two-dimensional electron or hole liquid</i> , University of Basel, Switzerland.
10/18/2006	<i>Spin-orbit interactions in a two-dimensional electron or hole liquid</i> , University of Missouri, Columbia, MO, USA.
12/22/2005	<i>Two dimensional electron liquid in the presence of Rashba spin-orbit</i> , SISSA-ISAS, Trieste, Italy.

OTHER PROFESSIONAL ACTIVITIES

Journal Referee: *Physical Review X*, *Physical Review Letters*, *Physical Review B*, *Europhysics Letters*, *Journal of Applied Physics*, *Physics Letters A*, *Physica Status Solidi B*, *Scientific Reports*, *Journal of Physics A*.

Reviewer of grants: *US Department of Energy/Office of Basic Energy Sciences*.

Referee for Conferences: *Quantum Information Processing (QIP) 2013*, *Magnetism and Magnetic Materials (MMM) 2013*.

External member of a PhD committee: Dr. Abhishek Kumar, School of Science and Engineering of Reykjavik University (Dec 2014).

Local coordinator of a *Federation agreement* between Beijing CSRC and Abdus Salam ICTP, Italy (2016 – 2019).

Local representative in a *Memorandum of understanding* between Beijing CSRC and the University of Brescia, Italy (2019 – 2021).

CONFERENCE ORGANIZATION

- Chair or co-chair:

Harnessing Color Entanglement for Information and Communication Technology (mid-term meeting of a MAECI-NSFC project)
held Nov 27, 2019 at the Beijing CSRC, China.

Website: <http://csrc.ac.cn/en/event/workshop/2019-11-26/97.html>

International Workshop on Spin Coherence and Topological Order in Semiconductor Nanosystems,
held on Oct 31-Nov 4, 2016 at the Beijing CSRC, China.

Website: <http://www.csrc.ac.cn/en/event/workshop/2016-02-22/62.html>

Partial list of speakers: D Awschalom (Chicago), A Bernevig (Princeton), WA Coish (McGill), D Culcer and A Dzurak (UNSW), K Ensslin (ETH), R Fazio (ICTP),

X-D Hu (Buffalo), D Loss (Basel), MB Plenio (Ulm), S-Q Shen (Hong Kong),
S Tarucha (Tokyo), Y Tserkovnyak (UCLA), H-Q Xu (Lund).

- Member of the Organizing Committee:

**Workshop on the Rabi Model, Strong Light-Matter Interactions and
Other Quantum Phenomena in CQED Platforms,**

held on Dec 5-9, 2017 at the Beijing CSRC, China.

Website: <http://www.csrc.ac.cn/en/event/workshop/2017-11-14/77.html>

Workshop on Computational Approach to Correlated Systems,

held on November 26-30, 2018 at the Beijing CSRC, China.

Website: <http://www.csrc.ac.cn/en/event/workshop/2018-10-15/86.html>

**CSRC Summer School on Quantum Non-Equilibrium Phenomena:
Methods and Applications,**

held on June 17-21, 2019 at the Beijing CSRC, China.

Website: <http://www.csrc.ac.cn/en/event/workshop/2019-05-17/91.html>