

Publications – Peter Stano

1. P. Stano, D. Loss, *Quantification of the heavy-hole-light-hole mixing in two-dimensional hole gases*, Phys. Rev. B 111, 115301 (2025).
2. L. Cvitkovich, P. Stano, Ch. Wilhelmer, D. Waldhör, D. Loss, Y.-M. Niquet, T. Grasser, *Coherence limit due to hyperfine interaction with nuclei in the barrier material of Si spin qubits*, Phys. Rev. Applied 22, 064089 (2024).
3. J.S. Rojas-Arias, A. Noiri, P. Stano, T. Nakajima, J. Yoneda, K. Takeda, T. Kobayashi, A. Sammak, G. Scappucci, D. Loss, and S. Tarucha, *Spatial noise correlations beyond nearest neighbors in $^{28}\text{Si}/\text{Si-Ge}$ spin qubits*, Phys. Rev. Applied 20, 054024 (2023).
4. P. Stano, T. Nakajima, A. Noiri, S. Tarucha, D. Loss, *Dynamical nuclear spin polarization in a quantum dot with an electron spin driven by electric dipole spin resonance*, Phys. Rev. B 108, 155306 (2023).
5. A. Gutierrez-Rubio, J. S. Rojas-Arias, J. Yoneda, S. Tarucha, D. Loss, P. Stano, *Bayesian estimation of correlation functions*, Phys. Rev. Research 4, 043166 (2022).
6. J. Yoneda, J. S. Rojas-Arias, P. Stano, K. Takeda, A. Noiri, T. Nakajima, D. Loss, S. Tarucha, *Noise-correlation spectrum for a pair of spin qubits in silicon*, Nat. Phys. 19, 1793 (2023).
7. O. Malkoc, P. Stano, D. Loss, *Charge-noise induced dephasing in silicon hole-spin qubits*, Phys. Rev. Lett. 129 247701 (2022).
8. Ch.-H. Hsu, P. Stano, J. Klinovaja, D. Loss, *Helical Liquids in Semiconductors*, Semicond. Sci. Technol. 36, 123003 (2021).
9. P. Stano, D. Loss, *Review of performance metrics of spin qubits in gated semiconducting nanostructures*, Nat. Rev. Phys. 4, 672 (2022).
10. P. Scarlino, J. H. Ungerer, D. J. van Woerkom, M. Mancini, P. Stano, C. Muller, A. J. Landig, J. V. Koski, C. Reichl, W. Wegscheider, T. Ihn, K. Ensslin, A. Wallraff, *In-situ Tuning of the Electric Dipole Strength of a Double Dot Charge Qubit: Charge Noise Protection and Ultra Strong Coupling*, Phys. Rev. X 12, 031004 (2022).
11. L. C. Camenzind, S. Svab, P. Stano, L. Yu, J. D. Zimmerman, A. C. Gossard, D. Loss, D. M. Zumbühl, *Isotropic and Anisotropic g-factor Corrections in GaAs Quantum Dots*, Phys. Rev. Lett. 127, 057701 (2021).

12. A. Gutierrez-Rubio, P. Stano, D. Loss, *Optimal frequency estimation and its application to quantum dots*, arxiv:2004.12049.
13. M. Marx, J. Yoneda, A. Gutierrez Rubio, P. Stano, T. Otsuka, K. Takeda, S. Li, Y. Yamaoka, T. Nakajima, A. Noiri, D. Loss, T. Kodera, S. Tarucha, *Spin orbit field in a physically defined p type MOS silicon double quantum dot*, arxiv:2003.07079.
14. T. Nakajima, A. Noiri, K. Kawasaki, J. Yoneda, P. Stano, S. Amaha, T. Otsuka, K. Takeda, M. R. Delbecq, G. Allison, A. Ludwig, A. D. Wieck, D. Loss, S. Tarucha, *Coherence of a driven electron spin qubit actively decoupled from quasi-static noise*, Phys. Rev. X 10, 011060 (2020).
15. Ch.-H. Hsu, P. Stano, J. Klinovaja, D. Loss, *Universal conductance dips and fractional excitations in a two-subband quantum wire*, Phys. Rev. Res. 2, 043208 (2020).
16. E. Marcellina, A. Srinivasan, F. Nichelle, P. Stano, D. A. Ritchie, I. Farrer, D. Culcer, A. R. Hamilton, *Nonlinear spin filter for nonmagnetic materials at zero magnetic field*, Phys. Rev. B 102, 140406(R) (2020).
17. T. Nakajima, A. Noiri, J. Yoneda, M. R. Delbecq, P. Stano, T. Otsuka, K. Takeda, S. Amaha, G. Allison, K. Kawasaki, A. Ludwig, A. D. Wieck, D. Loss, S. Tarucha, *Quantum non-demolition measurement of an electron spin qubit*, Nat. Nanotech. 14, 555 (2019).
18. *Charge transport of a spin-orbit-coupled Tomonaga-Luttinger liquid*, Ch.-H. Hsu, P. Stano, Y. Sato, S. Matsuo, S. Tarucha, D. Loss, Phys. Rev. B 100, 195423 (2019).
19. *Degeneracy lifting of Majorana bound states due to electron-phonon interactions*, P. Aseev, P. Marra, P. Stano, J. Klinovaja, D. Loss, Phys. Rev. B 99, 205435 (2019).
20. *Strong Electron-Electron Interactions of a Tomonaga-Luttinger Liquid Observed in InAs Quantum Wires*, Y. Sato, S. Matsuo, Ch.-H. Hsu, P. Stano, K. Ueda, Y. Takeshige, H. Kamata, J. S. Lee, B. Shojaei, K. Wickramasinghe, J. Shabani, Ch. Palmstrøm, Y. Tokura, D. Loss, S. Tarucha, Phys. Rev. B 99, 155304 (2019).
21. *g-factor of electrons in gate-defined quantum dots in a strong in-plane magnetic field*, P. Stano, Ch-H. Hsu, M. Serina, L. C. Camenzind, L. Yu, D. M. Zumbühl, D. Loss, Phys. Rev. B 98, 195314 (2018).
22. *Difference in charge and spin dynamics in a quantum dot-lead coupled system*, T. Otsuka, T. Nakajima, M. R. Delbecq, P. Stano, S. Amaha, J. Yoneda, K.

Takeda, G. Allison, S. Li, A. Noiri, T. Ito, D. Loss, A. Ludwig, A. D. Wieck, S. Tarucha, Phys. Rev. B 99, 085402 (2019).

23. *Majorana Kramers pairs in higher-order topological insulators*, Ch.-H. Hsu, P. Stano, J. Klinovaja, D. Loss, Phys. Rev. Lett. 121, 196801 (2018).
24. *A fast quantum interface between different spin qubit encodings*, A. Noiri, T. Nakajima, J. Yoneda, M. R. Delbecq, P. Stano, T. Otsuka, K. Takeda, S. Amaha, G. Allison, K. Kawasaki, A. Ludwig, A. D. Wieck, D. Loss, S. Tarucha, Nat. Commun. 9, 5066 (2018).
25. *Spectroscopy of Quantum-Dot Orbitals with In-Plane Magnetic Fields*, L. C. Camenzind, L. Yu, P. Stano, J. Zimmerman, A. C. Gossard, D. Loss, D. M. Zumbühl, Phys. Rev. Lett. 122, 207701 (2019) (Editors' Suggestion).
26. *Orbital effects of a strong in-plane magnetic field on a gate-defined quantum dot*, P. Stano, Ch-H. Hsu, L. C. Camenzind, L. Yu, D. M. Zumbühl, D. Loss, Phys. Rev. B 99, 085308 (2019).
27. *Effects of nuclear spins on the transport properties of the edge of two-dimensional topological insulators*, Ch.-H. Hsu, P. Stano, J. Klinovaja, D. Loss, Phys. Rev. B 97, 125432 (2018).
28. *Dipole-like dynamical nuclear spin polarization around a quantum point contact*, P. Stano, T. Aono, M. Kawamura, Phys. Rev. B 97, 075440 (2018).
29. *Hyperfine-phonon spin relaxation in a single-electron GaAs quantum dot*, L. C. Camenzind, L. Yu, P. Stano, J. Zimmerman, A. C. Gossard, D. Loss, D. M. Zumbühl, Nat. Commun. 9, 3454 (2018).
30. *Nuclear spin-induced localization of the edge states in two-dimensional topological insulators*, Ch.-H. Hsu, P. Stano, J. Klinovaja, D. Loss, Phys. Rev. B 96, 081405(R) (2017).
31. *Robust Single-Shot Spin Measurement with 99.5% Fidelity in a Quantum Dot Array*, T. Nakajima, M. R. Delbecq, T. Otsuka, P. Stano, S. Amaha, J. Yoneda, A. Noiri, K. Kawasaki, K. Takeda, G. Allison, A. Ludwig, A. D. Wieck, D. Loss, S. Tarucha, Phys. Rev. Lett. 119, 017701 (2017).
32. *Higher-order spin and charge dynamics in a quantum dot-lead hybrid system*, T. Otsuka, T. Nakajima, M. R. Delbecq, S. Amaha, J. Yoneda, K. Takeda, G. Allison, P. Stano, A. Nori, T. Ito, D. Loss, A. Ludwig, A. D. Wieck, S. Tarucha, Sci. Rep. 7, 12201 (2017).

33. *Fractional boundary charges in quantum dot arrays with density modulation*, J.-H. Park, G. Yang, J. Klinovaja, P. Stano, D. Loss, Phys. Rev. B 95, 075416 (2016).
34. *Signatures of hyperfine, spin-orbit, and decoherence effects in Pauli spin blockade*, T. Fujita, P. Stano, G. Allison, K. Morimoto, Y. Sato, M. Larsson, J.-H. Park, A. Ludwig, A. D. Wieck, A. Oiwa, S. Tarucha, Phys. Rev. Lett. 117, 206802 (2016) (Editors' Suggestion).
35. *Majorana bound states in magnetic skyrmions*, G. Yang, P. Stano, J. Klinovaja, D. Loss, Phys. Rev. B 93, 224505 (2016).
36. *Optimal geometry of lateral GaAs and Si/SiGe quantum dots for electrical control of spin qubits*, O. Malkoc, P. Stano, D. Loss, Phys. Rev. B 93, 235413 (2016).
37. *Quantum dephasing in a gated GaAs triple quantum dot due to non-ergodic noise*, M. R. Delbecq, T. Nakajima, P. Stano, T. Otsuka, S. Amaha, J. Yoneda, K. Takeda, G. Allison, A. Ludwig, A. D. Wieck, S. Tarucha, Phys. Rev. Lett. 116, 046802 (2016) (Editors' Suggestion).
38. *Topological Floquet Phases in Driven Coupled Rashba Nanowires*, J. Klinovaja, P. Stano, D. Loss, Phys. Rev. Lett. 116, 176401 (2016).
39. *Long-Distance Entanglement of Spin Qubits via Quantum Hall Edge States*, G. Yang, Ch.-H. Hsu, P. Stano, J. Klinovaja, D. Loss, Phys. Rev. B 93, 075301 (2016).
40. *Anti-ferromagnetic nuclear spin helix and topological superconductivity in ^{13}C nanotubes*, Ch.-H. Hsu, P. Stano, J. Klinovaja, D. Loss, Phys. Rev. B 92, 235435 (2015).
41. *Fast long-distance control of spin qubits by photon-assisted cotunneling*, P. Stano, J. Klinovaja, F. R. Braakman, L. M. K. Vandersypen, and D. Loss, Phys. Rev. B 92, 0745302 (2015).
42. *Electronic Magnetization of a Quantum Point Contact Measured by Nuclear Magnetic Resonance*, M. Kawamura, K. Ono, P. Stano, K. Kono, and T. Aono, Phys. Rev. Lett. 115, 036601 (2015) (Editors' Suggestion).
43. *Voltage induced conversion of helical to uniform nuclear spin polarization in a quantum wire*, V. Kornich, P. Stano, A. A. Zyuzin, D. Loss, Phys. Rev. B 91, 195423 (2015).
44. *Generation and Detection of Spin Currents in Semiconductor Nanostructures with Strong Spin-Orbit Interaction*, F. Nicelle, S. Hennel, P. Pietsch, W.

Wegscheider, P. Stano, Ph. Jacquod, T. Ihn, K. Ensslin, Phys. Rev. Lett. 114, 206601 (2015).

45. *Spin relaxation anisotropy in a GaAs quantum dot*, P. Scarlino, E. Kawakami, P. Stano, M. Shafiei, C. Reichl, W. Wegscheider, L. M. K. Vandersypen, Phys. Rev. Lett. 113, 256802 (2014) (Editors' Suggestion).
46. *NMR Response of Nuclear Spin Helix in Quantum Wires with Hyperfine and Spin-Orbit Interaction*, P. Stano, D. Loss, Phys. Rev. B 90, 195312 (2014).
47. *Helical nuclear spin order in a strip of stripes in the Quantum Hall regime*, T. Meng, P. Stano, J. Klinovaja, D. Loss, Eur. Phys. J. B 87, 203 (2014).
48. *Electric control of tunneling energy in graphene double dots*, M. Raith, Ch. Ertler, P. Stano, M. Wimmer, and J. Fabian, Phys. Rev. B 89, 085414 (2014).
49. *Spin Hot Spots in Single-Electron GaAs-based Quantum Dots*, M. Raith, Th. Pangerl, P. Stano, and J. Fabian, Phys. Status Solidi B 251, 1924 (2014).
50. *Topological Superconductivity and Majorana Fermions in RKKY Systems*, J. Klinovaja, P. Stano, A. Yazdani, D. Loss, Phys. Rev. Lett. 111, 186805 (2013).
51. *Circuit QED with Hole-Spin Qubits in Ge/Si Nanowire Quantum Dots*, Ch. Kloeffel, M. Trif, P. Stano, D. Loss, Phys. Rev. B 88, 241405(R) (2013).
52. *Local Spin Susceptibilities of Low-Dimensional Electron Systems*, P. Stano, J. Klinovaja, A. Yacoby, D. Loss, Phys. Rev. B 88, 045441 (2013) (Editors' Suggestion).
53. *Suppression of Interactions in Multimode Random Lasers in the Anderson Localized Regime*, P. Stano, Ph. Jacquod, Nature Photonics 7, 66 (2013).
54. *Spin ordering in magnetic quantum dots: From core-halo to Wigner molecules*, R. Oswałdowski, P. Stano, A. G. Petukhov, I. Žutić, Phys. Rev. B 86, 201408(R) (2012).
55. *Spin-orbit coupled particle in a spin bath*, P. Stano, J. Fabian, I. Zutic, Phys. Rev. B 87, 165303 (2013).
56. *Transition from fractional to Majorana fermions in Rashba nanowires*, J. Klinovaja, P. Stano, D. Loss, Phys. Rev. Lett. 109, 236801 (2012).
57. *Theory of Spin Relaxation in Two-Electron Lateral Coupled Si/SiGe Quantum Dots*, M. Raith, P. Stano, J. Fabian, Phys. Rev. B 86, 205321 (2012).
58. *Theory of Spin Relaxation in Two-Electron Lateral Coupled Quantum Dots*, M. Raith, P. Stano, F. Baruffa, J. Fabian, Phys. Rev. Lett. 108, 246602 (2012).

59. *Non-linear spin to charge conversion in mesoscopic structures*, P. Stano, J. Fabian, Ph. Jacquod, Phys. Rev. B 85, 241301(R) (2012).
60. *Measuring Spin Accumulations with Current Noise*, J. Meair, P. Stano, Ph. Jacquod, Phys. Rev. B 84, 073302 (2011).
61. *Theory of Single Electron Spin Relaxation in Si/SiGe Lateral Coupled Quantum Dots*, M. Raith, P. Stano, J. Fabian, Phys. Rev. B 83, 195318 (2011).
62. *Spin-to-Charge Conversion of Mesoscopic Spin Currents*, P. Stano, Ph. Jacquod, Phys. Rev. Lett. 106, 206602 (2011).
63. *Spin-dependent tunneling into an empty lateral quantum dot*, P. Stano, Ph. Jacquod, Phys. Rev. B 82, 125309 (2010).
64. *Spin-orbit coupling and anisotropic exchange in two-electron double quantum dots*, F. Baruffa, P. Stano, J. Fabian, Phys. Rev. B 82, 045311 (2010).
65. *Theory of anisotropic exchange in laterally coupled quantum dots*, F. Baruffa, P. Stano, J. Fabian, Phys. Rev. Lett. 104, 126401 (2010).
66. *Coexistence of Quantum Operations*, T. Heinosaari, D. Reitzner, P. Stano, M. Ziman, J. Phys. A: Math. Theor. 42, 365302 (2009).
67. *Notes on Joint Measurability of Quantum Observables*, T. Heinosaari, D. Reitzner, P. Stano, Found. Phys. 38, 1133 (2008).
68. *Coexistence of qubit effects*, P. Stano, D. Reitzner, and T. Heinosaari, Phys. Rev. A 78, 012315 (2008).
69. *Approximate joint measurability of spin along two directions*, T. Heinosaari, P. Stano, D. Reitzner, Int. J. Quant. Inf. 6, 975 (2008).
70. *Control of electron spin and orbital resonance in quantum dots through spin-orbit interactions*, P. Stano, J. Fabian, Phys. Rev. B 77, 045310 (2008).
71. *Semiconductor spintronics*, J. Fabian, A. Matos-Abiague, C. Ertler, P. Stano, and I. Zutic, Acta Physica Slovaca 57, 565 (2007).
72. *Theory of phonon-induced spin relaxation in laterally coupled quantum dots*, P. Stano, J. Fabian, Phys. Rev. Lett. 96, 186602 (2006).
73. *Orbital and spin relaxation in single and coupled quantum dots*, P. Stano, J. Fabian, Phys. Rev. B 74, 045320 (2006).
74. *Spin-orbit effects in single-electron states in coupled quantum dots*, P. Stano, J. Fabian, Phys. Rev. B 72, 155410 (2005).