

Shannon P. Harvey

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APPOINTMENTS

Research Associate
Department of Applied Physics, Stanford University
SLAC National Accelerator Laboratory
Advisor: David Schuster **2022-**

Postdoctoral researcher
Department of Applied Physics, Stanford University
SLAC National Accelerator Laboratory
Advisor: Harold Hwang **2019-2022**

EDUCATION

Ph.D. in Physics, Harvard University
Advisor: Amir Yacoby **2011-2019**

B.A. magna cum laude in Physics and Mathematics, Cornell University **2006-2010**

HONORS AND AWARDS

Harvard Physics Department, Goldhaber Prize
Given to the most outstanding experimentalist Ph.D. candidate **2017**

Harvard Bok Center, Certificate of Distinction in Teaching **Fall 2015, Fall 2016, Spring 2017**

Harvard Physics Department, Harold T. White Teaching Prize **2016**

National Defense Science and Engineering Graduate (NDSEG) Fellowship **2012**

National Science Foundation Graduate Research Fellowship (declined) **2012**

PUBLICATIONS

- 22) Y. Lee, X. Wei, Y. Yu, L. Bhatt, K. Lee, B.H. Goodge, **S.P. Harvey**, B.Y. Wang, D.A. Muller, L.F. Kourkoutis, W.-S. Lee, S. Raghu, H.Y. Hwang. “Millimeter-Scale Freestanding Superconducting Infinite-Layer Nickelate Membranes.” *In review* [arXiv \(2024\)](https://arxiv.org/abs/2024.03.01)
- 21) A. Anferov, **S.P. Harvey**, F. Wan, J. Simon and D.I. Schuster. “Superconducting qubits above 20 GHz operating over 200 mK.” *In review* [arXiv \(2024\)](https://arxiv.org/abs/2024.03.01).
- 20) A. Anferov, **S.P. Harvey**, F. Wan, J. Simon, and D.I. Schuster. “Low-loss Millimeter-wave Resonators with an Improved Coupling Structure.” *Supercond. Sci. and Technol.* **37**, 3: [035013 \(2024\)](https://doi.org/10.1088/1361-6668/37/3/035013).
- 19) **S.P. Harvey**^{*}, B.Y. Wang^{*}, J. Fowlie, M. Osada, K. Lee, Y. Lee, D. Li and H.Y. Hwang. “Evidence for nodal superconductivity in infinite-layer nickelates.” *In review*, [arXiv \(2022\)](https://arxiv.org/abs/2022.03.01)
- 18) H. Yoon, A.G. Swartz, **S.P. Harvey**, H. Inoue, Y. Hikita, Y. Yu, S.B. Chung, S. Raghu, and H.Y. Hwang. “Low-Density Superconductivity in SrTiO₃ Bounded by the Adiabatic Criterion.” *In review*, [arXiv \(2021\)](https://arxiv.org/abs/2021.03.01).
- 17) K. Lee, B.Y. Wang, M. Osada, B.H. Goodge, T.C.-A. Wang, Y. Lee, **S.P. Harvey**, W. Kim, Y. Yu, C. Murthy, S. Raghu, L.F. Kourkoutis and H.Y. Hwang. “Linear-in-temperature resistivity for optimally superconducting (Nd,Sr)NiO₂.” *Nature* **619**, 288–292 (2023).
- 16) C.G.L. Bøttcher, **S.P. Harvey**, S. Fallahi, G.C. Gardner, M.J. Manfra, U. Vool, S.D. Bartlett, and A. Yacoby. “Parametric longitudinal coupling between a high-impedance superconducting resonator and a semiconductor quantum dot singlet-triplet spin qubit.” *Nature Communications* **13**, 4773 (2022).

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- 15) **S.P. Harvey**. “Quantum Dots / Spin Qubits.” *Oxford Research Encyclopedia of Physics*. Oxford University Press (2022). (review article)
 - 14) Y. Hsu, M. Osada, B.Y. Wang, M. Bergen, C. Duffy, **S.P. Harvey**, K. Lee, D. Li, S. Wiedmann, H.Y. Hwang and N.E. Hussey. “Correlated insulating behavior in infinite-layer nickelates.” *Frontiers in Physics* 10, (2022).
 - 13) M. Osada, B.Y. Wang, B.H. Goodge, **S.P. Harvey**, K. Lee, D. Li, L.F. Kourkoutis, and H.Y. Hwang. “Nickelate Superconductivity without Rare-Earth Magnetism: (La,Sr)NiO₂.” *Advanced Materials* 2104083 (2021).
 - 12) B.Y. Wang, D. Li, B.H. Goodge, K. Lee, M. Osada, **S.P. Harvey**, L.F. Kourkoutis, M.R. Beasley, and H.Y. Hwang. “Isotropic Pauli-Limited Superconductivity in the Infinite-Layer Nickelate Nd_{0.775}Sr_{0.225}NiO₂.” *Nature Physics* 17, 4: 473-477 (2021).
 - 11) L.D. Alegria, C.G.L. Böttcher, A.K. Saydjari, A.T. Pierce, S.H. Lee, **S.P. Harvey**, U. Vool, and A. Yacoby. “High-Energy Quasiparticle Injection into Mesoscopic Superconductors.” *Nature Nanotechnology* 16 4: 404-408 (2021).
 - 10) D. Li, B.Y. Wang, K. Lee, **S.P. Harvey**, M. Osada, B.H. Goodge, L.F. Kourkoutis, and H.Y. Hwang. “Superconducting Dome in Nd_{1-x}Sr_xNiO₂.” *Physical Review Letters* 125, 2: 027001. (2020).
 - 9) T. Botzern, M.D. Shulman, S. Foletti, **S.P. Harvey**, O.E. Dial, P. Bethke, P. Cerfontaine, R.P.G. McNeil, D. Mahalu, V. Umansky, A. Ludwig, A. Wieck, D. Schuh, D. Bougeard, A. Yacoby, and H. Bluhm. “Tuning methods for semiconductor spin-qubits.” *Physical Review Applied* 10, 5: 054026 (2018).
 - 8) L.A. Orona, J.M. Nichol, **S.P. Harvey**, C.G.L. Böttcher, S. Fallahi, G.C. Gardner, M.J. Manfra, and A. Yacoby. “Readout of singlet-triplet qubits at large magnetic field gradients.” *Physical Review B* 98, 12: 12504 (2018).
 - 7) **S.P. Harvey**, C.G.L. Böttcher, L.A. Orona, S.D. Bartlett, A.C. Doherty, and A. Yacoby. “Coupling two spin qubits with a high-impedance resonator.” *Physical Review B* 97, 23: 235409 (2018).
 - 6) A. Pal, J.M. Nichol, M.D. Shulman, **S.P. Harvey**, V. Umansky, E.I. Rashba, Amir Yacoby, and Bertrand I. Halperin. “Electron spin-flip correlations due to nuclear dynamics in driven GaAs double dots.” *Physical Review B* 95, 3: 035306 (2017).
 - 5) J.M. Nichol, L.A. Orona, **S.P. Harvey**, S. Fallahi, G.C. Gardner, M.J. Manfra, and A. Yacoby. “High-fidelity entangling gate for double-quantum-dot spin qubits.” *npj Quantum Information* 3, 1: 3 (2017).
 - 4) J.M. Nichol, **S.P. Harvey**, M.D. Shulman, A. Pal, V. Umansky, E.I. Rashba, B.I. Halperin, and A. Yacoby. “Quenching of dynamic nuclear polarization by spin-orbit coupling in GaAs quantum dots.” *Nature Communications* 6: 7682 (2015).
 - 3) M.D. Shulman*, **S.P. Harvey***, J.M. Nichol*, S.D. Bartlett, A.C. Doherty, V. Umansky, and A. Yacoby. “Suppressing qubit dephasing using real-time Hamiltonian estimation.” *Nature Communications* 5: 5156 (2014).
 - 2) O.E. Dial, M.D. Shulman, **S.P. Harvey**, H. Bluhm, V. Umansky, and A. Yacoby. “Charge Noise Spectroscopy Using Coherent Exchange Oscillations in a Singlet-Triplet Qubit.” *Physical Review Letters* 110, 14 (2013).
 - 1) M.D. Shulman, O.E. Dial, **S.P. Harvey**, H. Bluhm, V. Umansky, and A. Yacoby. “Demonstration of Entanglement of Electrostatically Coupled Singlet-Triplet Qubits.” *Science* 336, 6078: 202–5 (2012).

* Indicates equal contribution

SELECTED INVITED TALKS

Seminar Department of Electrical & Computer Engineering, UCLA	05/2023
Seminar Department of Physics, Arizona State University	04/2023
Condensed Matter Seminar Department of Physics, Rutgers University	04/2023
Seminar Department of Electrical & Computer Engineering, University of Michigan	03/2023
Seminar Department of Materials Science and NanoEngineering, Rice University	03/2023
Seminar Department of Electrical & Computer Engineering, UMass Amherst	03/2023
Seminar Department of Physics, UMass Amherst	03/2023
Condensed Matter Seminar Department of Physics, Harvard University	12/2022
South Carolina Quantum Technology Forum, Clemson University	4/2022
Seminar Department of Electrical & Computer Engineering, Northwestern University	3/2022
Seminar Department of Electrical & Computer Engineering, University of Texas at Austin	2/2022
Colloquium Department of Physics, New York University	1/2022
Nanoelectronics and Photonics Seminar Electrical and Computer Engineering Department, University of Delaware	11/2021
Center for Research on Interface Structures and Phenomena (CRISP) Seminar Yale University	12/2018
Condensed Matter Seminar Geballe Laboratory for Advanced Materials (GLAM), Stanford University	11/2018

TEACHING

Teaching Fellow for Principles of Scientific Inquiry, Lab for Physics 15a, Introductory Mechanics and Relativity	Fall 2015, Fall 2016, Fall 2017
Teaching Fellow for lab for Physics 15b, Introductory Electricity and Magnetism	Spring 2017

SERVICE

Reviewer for Nature, Nano Letters, npj Quantum Information	
Diversity, Equity and Inclusion Committee Member, Stanford Applied Physics	2021-
Panelist for NDSEG Fellowship	2019, 2020
Session Chair, American Physical Society March Meeting	2019, 2021, 2022

OUTREACH

Volunteer at NanoDays at Museum of Science, Boston	2018
Mentor for undergraduate woman in Harvard Women in STEM program	2011-2012, 2016-2017
Volunteer mathematics tutor at Cambridge Rindge and Latin	2013-2014
Volunteer mathematics and science tutor at Charlestown High School	2011-2012