John W. Blanchard, PhD

CONTACT INFORMATION

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Quantum Technology Center
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RESEARCH INTERESTS

Quantum Sensing — Physical Chemistry — Magnetic Resonance — Precision Measurement — Imaging — Atomic, Molecular, and Optical Physics

EMPLOYMENT

Quantum Technology Center (QTC), University of Maryland **Aug. 2022 – Current**
College Park, MD

QTC Scientist (Faculty Specialist)
- Mentoring, supervising, and training QTC students and postdocs
- Leading magnetic resonance research efforts
- Lab safety/compliance liason

NVision Imaging Technologies GmbH, Ulm, Germany **Oct. 2020 – July 2022**

Associate Director of NMR Applications
- Developed methods and prototype instruments for medical and analytical hyperpolarization systems
- Coordinated collaborations with academic partners

Helmholtz-Institut Mainz, Mainz, Germany **Jan. 2015 – Sept. 2020**

Helmholtz Postdoctoral Fellow, in Matter-Antimatter (MAM) Section
- Leader of NMR subgroup
- Technical design lead for CASPEr-Wind dark-matter search
- Section Leader: Prof. Dr. Dmitry Budker

EDUCATION

University of California, Berkeley, Berkeley, CA **August 2010 – December 2014**

Ph.D. Chemistry
- Thesis Topic: *Zero and Ultra-Low-Field Nuclear Magnetic Resonance Spectroscopy Via Optical Magnetometry*
- Advisor: Prof. Alexander Pines

Arizona State University, Tempe, AZ **August 2006 – May 2010**

B.S. Physics and B.S. Chemistry
- Honors Thesis: *NMR Characterization of Translational Dynamics in Triethylammonium-Based Protic Ionic Liquids*
- Thesis Advisor: Prof. Jeff Yarger

SUBMITTED PREPRINTS

[1] K. Everaert, S. Satyajit, J. Tang, Z. Yin, X. Zheng, J. Tzern Oon, C. A. Hart, J. W. Blanchard, R. L. Walsworth. AC magnetometry in the strong drive regime with NV centers in diamond. *Submitted.* arXiv:2510.05471.

[2] R. A. Escalante, A. J. Beling, N. Reed, J. Welter, J. W. Blanchard, D. G. Ang, C. Campos, E. Coronel, K. Krambrock, A. S. Leal, P. N. Prasad, R. L. Walsworth. Direct Measurement of the Singlet Lifetime and Photoexcitation Behavior of the Boron Vacancy Center in Hexagonal Boron Nitride. Accepted at *Adv. Opt. Mater.* arXiv:2504.05289.

[3] D. M. Daly, N. R. Reed, S. J. DeVience, Z. Yin, J. Cremer, A. J. Beling, J. W. Blanchard, R. L. Walsworth. Prospects for Ultralow-Mass Nuclear Magnetic Resonance using Spin Defects in Hexagonal Boron Nitride. *Submitted.* arXiv:2505.00383.

REFEREED JOURNAL PUBLICATIONS

[4] A. M. Fabricant, R. Picazo-Frutos, F. Teleanu, G. J. Rees, M. Lin, R. A. House, P. G. Bruce, J. W. Blanchard, J. Eills, K. Sheberstov, D. Budker, D. A. Barskiy, A. Jerschow. Enabling nondestructive observation of electrolyte composition in batteries with ultralow-field nuclear magnetic resonance. *Chem. Sci* **17**, 5877. (2026)

[5] L. H. Bosch, P. R. Jensen, N. Striegler, T. Unden, J. Scharpf, U. Qureshi, P. Neumann, M. Gierse, J. W. Blanchard, S. Knecht, J. Scheuer, I. Schwartz, M. B. Plenio. Hierarchical Maximum Likelihood Estimation for Time-Resolved NMR Data. *J. Magn. Reson.* **385**, 108044. (2026)

[6] X. Zheng, J. Támara-Isaza, Z. Yin, J. Cremer, J. W. Blanchard, C. A. Hart, M. Crescimanno, P. V. Petruzzi, M. J. Turner, R. L. Walsworth. All-Optical Photoluminescence Spectra of Nitrogen-Vacancy Ensembles in Diamond at Low Magnetic Fields. *Phys. Rev. Appl.* **24**, 064049. (2025)

[7] J. Walter, O. Maliaka, Y. Zhang, J. W. Blanchard, G. Centers, A. Dogan, M. Engler, N. L. Figueroa, Y. Kim, D. F. Jackson Kimball, M. Lawson, D. W. Smith, A. O. Sushkov, D. Budker, H. Bekker, A. Wickenbrock. Search for axionlike dark matter using liquid-state nuclear magnetic resonance. *Phys. Rev. D* **112**, 052008. (2025)

[8] E. Van Dyke, J. Eills, K. Sheberstov, J. W. Blanchard, M. Wagner, R. Graf, A. E. Wedenig, K. Gaul, R. Berger, R. Pietschnig, D. Kargin, D. A. Barskiy, D. Budker. Towards detection of molecular parity violation via chiral co-sensing: the 1H/31P model system. *Phys. Chem. Chem. Phys.*. (2025)

[9] D. A. Barskiy, J. W. Blanchard, D. Budker, J. Eills, S. Pustelny, K. F. Sheberstov, M. C. D. Tayler, A. H. Trabesinger. Zero- to Ultralow-Field Nuclear Magnetic Resonance. *Prog. Nucl. Magn. Reson. Spectrosc.* **148-149**, 101558. (2025)

[10] Z. Yin, J. Tang, C. A. Hart, J. W. Blanchard, X. Xiang, S. Satyajit, S. Bhalerao, T. Tao, S. J. DeVience, R. L. Walsworth. Quantum Diamond Microscope for Narrowband Magnetic Imaging with High Spatial and Spectral Resolution. *Phys. Rev. Appl.*. **22** (5), 054050. (2024)

[11] D. Daly, S. J. DeVience, E. Huckestein, J. W. Blanchard, J. Cremer, R. L. Walsworth. Nutation-Based Longitudinal Sensing Protocols for High-Field NMR With Nitrogen-Vacancy Centers in Diamond. *Phys. Rev. Appl.*, **22** (2), 024043. (2024)

[12] L. Dagys, M. C. Korzeczek, A. J. Parker, J. Eills, J. W. Blanchard, C. Bengs, M. H. Levitt, S. Knecht, I. Schwartz, M. B. Plenio. Robust Parahydrogen-Induced Polarization at High Concentrations. *Sci. Adv.*, **10** (30), eado0373 (2024).

[13] R. Picazo-Frutos, K. F. Sheberstov, J. W. Blanchard, E. Van Dyke, M. Reh, T. Sjolander, A. Pines, D. Budker, D. A. Barskiy. Zero-Field J-spectroscopy of Quadrupolar Nuclei. *Nat. Commun*, **15**, 4487 (2024).

[14] J. Eills, R. Picazo-Frutos, O. Bondar, E. Cavallari, C. Carrera, S. J. Barker, M. Utz, A Herrero-Gómez, I. Marco-Rius, M. C. D. Tayler, S. Aime, F. Reineri, D. Budker, J. W. Blanchard. Enzymatic Reactions Observed with Zero- and Low-Field Nuclear Magnetic Resonance. *Anal. Chem.*, **95** (49), 17997–18005 (2023).

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[16] A. J. Parker, A. Dey, M. U. Qureshi, J. M. Steiner, J. W. Blanchard, J. Scheuer, N. Tomek, S. Knecht, F. Josten, C. Mueller, P. Hautle, I. Schwartz, P. Giraudeau, T. R. Eichhorn, J-N Dumez. Solution-state 2D NMR spectroscopy of mixtures hyperpolarized using optically polarized crystals. *Angew. Chem. Int. Ed.*, **62** (50), e202312302 (2023).

[17] L. Nagel, M. Gierse, W. Gottwald, Z. Ahmadova, M. Grashei, P. Wolff, F. Josten, S. Karaali, C. A. Müller, S. Lucas, J. Scheuer, C. Müller, J. W. Blanchard, G. J. Topping, A. Wendlinger, N. Setzer, S. Sühnel, J. Handwerker, C. Vassiliou, F. H. van Heijster, S. Knecht, M. Keim, F. Schilling, I. Schwartz. Parahydrogen-Polarized [1-^{13}C]Pyruvate for Reliable and Fast Preclinical Metabolic Magnetic Resonance Imaging. *Adv. Sci.* 2303441 (2023).

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[19] D. A. Barskiy, J. W. Blanchard, D. Budker, Q. Stern, J. Eills, S. J. Elliott, R. Picazo-Frutos, A. Garcon, S. Jannin, I. V. Koptyug. Possible Applications of Dissolution Dynamic Nuclear Polarization in Conjunction with Zero-to Ultralow-Field Nuclear Magnetic Resonance. *Appl. Magn. Reson.* (2023).

[20] J. M. Steiner, Y. Quan, T. R. Eichhorn, A. J. Parker, M. U. Qureshi, J. Scheuer, C. Müller, J. W. Blanchard, I. Schwartz, and P. Hautle. Long-Lived, Transportable Reservoir of Nuclear Polarization Used to Strongly Enhance Solution-State NMR Signals. *J. Phys. Chem. A* **127** (16), 3728-3735 (2023).

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[26] G. P. Centers, J. W. Blanchard, J. Conrad, N. L. Figueroa, A. Garcon, A. V. Gramolin, D. F. Jackson Kimball, M. Lawson, B. Pelssers, J. A. Smiga, Y. V. Stadnik, A. O. Sushkov, A. Wickenbrock, D. Budker, and A. Derevianko. Stochastic amplitude fluctuations of bosonic dark matter and revised constraints on linear couplings. *Nat. Commun.*, **12**, 7321 (2021).

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[28] K. F. Sheberstov, L. Chuchkova, Y. Hu, I. V. Zhukov, A. S. Kiryutin, A. V. Eshtukov, D. A. Cheshkov, D. A. Barskiy, J. W. Blanchard, D. Budker, K. L. Ivanov, and A. V. Yurkovskaya. Photochemically induced dynamic nuclear polarization of heteronuclear singlet order. *J. Phys. Chem. Lett.*, **12** (19), 4686-4691 (2021).

[29] J. W. Blanchard*, B. Ripka, B. A. Suslick, D. Gelevski, T. Wu, K. Münnemann, D. Barskiy*, and D. Budker. Towards Large-Scale Steady-State Enhanced Nuclear Magnetization with In Situ Detection. *Magn. Reson. Chem.*, **59** (12), 1208-1215 (2021).

[30] D. Aybas, J. Adam, E. Blumenthal, A. V. Gramolin, D. Johnson, A. Kleyheeg, S. Afach, J. W. Blanchard, G. P. Centers, A. Garcon, M. Engler, N. L. Figueroa, M. Gil Sendra, A. Wickenbrock, M. Lawson, T. Wang, T. Wu, H. Luo, H. Mani, P. Mauskopf, P. W. Graham, S. Rajendran, D. F. Jackson Kimball, D. Budker, A. O. Sushkov. Search for axion-like dark matter using solid-state nuclear magnetic resonance. *Phys. Rev. Lett.* **126**, 141802 (2021).

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[35] D. B. Burueva, J. Eills,* J. W. Blanchard,* A. Garcon, R. Picazo Frutos, K. V. Kovtunov, I. Koptyug, and D. Budker. Chemical Reaction Monitoring Using Zero-Field Nuclear Magnetic Resonance Enables Study of Heterogeneous Samples in Metal Containers. *Angew. Chem. Int. Ed.*, **59** (39), 17026–17032 (2020).

[36] J. W. Blanchard,* J. P. King, T. F. Sjolander, M. G. Kozlov, and D. Budker. Molecular Parity Nonconservation in Nuclear Spin Couplings. *Phys. Rev. Research*, **2** (2), 023258 (2020).

[37] J. W. Blanchard,* T. Wu, J. Eills, Y. Hu, and D. Budker. Zero- to Ultralow-Field Nuclear Magnetic Resonance J-Spectroscopy with Commercial Atomic Magnetometers. *J. Magn. Reson.*, **314**, 106723 (2020). Cover article.

[38] Y. Hu, G. Z. Iwata, M. Mohammadi, E. V. Silletta, A. Wickenbrock, J. W. Blanchard, D. Budker, A. Jerschow. Sensitive Magnetometry Reveals Inhomogeneities in Charge Storage and Weak Transient Internal Currents in Li-ion Cells. *Proc. Natl. Acad. Sci. U.S.A.*, **117** (20), 10667–10672 (2020).

[39] A. Garcon, J. W. Blanchard,* G. P. Centers, N. L. Figueroa, P. W. Graham, D. F. Jackson Kimball, S. Rajendran, A. O. Sushkov, Y. V. Stadnik, A. Wickenbrock, T. Wu, and D. Budker. Constraints on bosonic dark matter from ultralow-field nuclear magnetic resonance. *Sci. Adv.* **5** (10), eaax4539 (2019).

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[41] T. Wu, J. W. Blanchard, G. P. Centers, N. L. Figueroa, A. Garcon, P. W. Graham, D. F. Jackson Kimball, S. Rajendran, Y. V. Stadnik, A. O. Sushkov, A. Wickenbrock, and D. Budker. Search for axionlike dark matter with a liquid-state nuclear spin comagnetometer. *Phys. Rev. Lett.* **122**, 191302 (2019).

[42] J. Eills, J. W. Blanchard, T. Wu, C. Bengs, J. Hollenbach, D. Budker, and M. H. Levitt. Polarization transfer via field sweeping in parahydrogen-enhanced nuclear magnetic resonance. *J. Chem. Phys.* **150**, 174202 (2019).

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[50] A. Wilzewski, S. Afach, J. W. Blanchard*, and D. Budker. A Method for Measurement of Spin-Spin Couplings with sub-mHz Precision Using Zero-to Ultralow-Field Nuclear Magnetic Resonance. *J. Magn. Reson.* 284, 66-72 (2017).

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[52] J. P. King, T. F. Sjolander, and J. W. Blanchard. Antisymmetric Couplings Enable Direct Observation of Chirality in Nuclear Magnetic Resonance Spectroscopy. *J. Phys. Chem. Lett.* **8** (4), 710-714 (2017).

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[54] O. Yu. Tretiak, J. W. Blanchard, D. Budker, P. K. Olshin, S. N. Smirnov, A. M. Hibberd, and M. V. Balabas. Raman and nuclear magnetic resonance investigation of alkali metal vapor interaction with alkene-based anti-relaxation coating. *J. Chem. Phys.* **144** (9), 094707 (2016)

[55] J. W. Blanchard*, T. F. Sjolander, J. P. King, M. P. Ledbetter, E. H. Levine, V. S. Bajaj, D. Budker, and A. Pines. Measurement of untruncated nuclear spin interactions via zero- to ultralow-field nuclear magnetic resonance. *Phys. Rev. B* **92** (22), 220202. (2015)

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[60] M. C. Butler, M. P. Ledbetter, T. Theis, J. W. Blanchard, D. Budker, and A. Pines. Multiplets at zero magnetic field: The geometry of zero-field NMR. *J. Chem. Phys.* **138** (18), 184202. (2013)

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[67] J. W. Blanchard*, D. Budker, and A. Trabesinger. Lower than low: perspectives on zero- to ultralow-field nuclear magnetic resonance. *J Magn. Reson.* **323**, 106886 (2021).

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BOOK CHAPTERS

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PATENTS FILED

[73] I. Schwartz, A. J. Parker, S. Knecht, T. Eichhorn, and J. W. Blanchard (2022). *Systems and methods for generation of hyperpolarized materials* (U.S. Patent Application Number 18/226,960). United States Patent and Trademark Office. Patent pending.

[74] J. W. Blanchard, D. Budker, J. Eills, M. Kowalska, and K. Kulesz (2021). *Radiation-detected zero- to ultralow-field nuclear magnetic resonance* (PCT/EP2021/083136). European Patent Office. Patent pending.

[75] A. Jerschow, M. Mohammadi, E. Silletta, D. Budker, G. Z. Iwata, Y. Hu, A. Wickenbrock, and J. W. Blanchard. *Systems and methods for magnetic susceptometry of devices with magnetometry* (U.S. Patent US12529725B2). United States Patent and Trademark Office. Granted 2026.

INVITED CONFERENCE LECTURES

[76] J. W. Blanchard. Quantum Diamond Microscopy for Biochemical Analysis. 2nd Mechanick Quantum Biosensing Workshop. October 28, 2025 in College Park, MD, USA.

[77] J. W. Blanchard. Quantum Diamond Microscopy for Biochemical Analysis. 2025 Q-FARM Biosensing Workshop. August 22, 2025 in Stanford, CA, USA.

[78] J. W. Blanchard. Toward High-Performance NMR Microscopy Detected With Solid-State Qubits. HyPERiON Microscale NMR and MRI Conference. June 30, 2025 in Ettlingen, Germany.

[79] J. W. Blanchard. Extreme Nuclear Magnetization. HyperMix. June 14, 2022. Nantes.

[80] J. W. Blanchard. Lower Than Low: Adventures in Zero- to Ultralow-Field NMR. Compact NMR Conference II. October 11-13, 2021. Online. Plenary.

[81] J. W. Blanchard. Entanglement-enhanced NMR at zero magnetic field. Parahydrogen Enhanced Resonance Meeting (PERM). June 21, 2021. Online.

[82] J. W. Blanchard. Fundamental physics with zero to ultralow-field NMR: Measuring zero at zero field. 1st Conference on ZULF NMR. September 3, 2020. Online.

[83] J. W. Blanchard. Parahydrogen-Induced Polarization in Searches for New Physics. Parahydrogen Enhanced Resonance Meeting (PERM). July 29, 2020. Online.

[84] J. W. Blanchard. Overview and Status of the Cosmic Axion Spin Precession Experiment (CASPEr). JEDI Collaboration Meeting. October 8, 2019, Jülich, Germany.

[85] J. W. Blanchard. Nuclear Spin Hyperpolarization in Zero to Ultralow Magnetic Fields. Spin Chemistry Meeting 2019. August 20, 2019, St. Petersburg, Russia.

[86] J. W. Blanchard and Arne Wickenbrock. CASPEr+. Quantum Connections Session 5: Axions in Stockholm – Reloaded. November 28, 2018. AlbaNova University Center / Nordita, Stockholm, Sweden.

[87] J. W. Blanchard. Hyperpolarized Nuclear Magnetic Resonance at Zero and Ultralow Field. FGMR Annual Discussion Meeting. September 12, 2018, Leipzig, Germany.

[88] J. W. Blanchard. Fundamental Physics with Liquid-State Nuclear Magnetic Resonance. Annual Meeting of the American Physical Society Division of Atomic, Molecular and Optical Physics (DAMOP). May 29, 2018, Ft. Lauderdale, FL, USA.

[89] J. W. Blanchard for the CASPEr Collaboration. Hyperpolarized liquid ^{129}Xe for ultralight dark matter detection. International Xenon Symposium – XeMAT 2018. May 8, 2018, Philadelphia, PA, USA.

[90] J. W. Blanchard for the CASPEr Collaboration. Status of the Cosmic Axion Spin Precession Experiment (CASPEr). 12th Patras Workshop on Axions, WIMPs & WISPs. June 21, 2016, Jeju Island, South Korea.

CONFERENCE LECTURES

[91] J. W. Blanchard. Enzymatic Reactions Observed with Zero- and Low-Field Nuclear Magnetic Resonance. American Chemical Society Fall 2025 Meeting. August 20, 2025 in Washington D.C., USA.

[92] J. W. Blanchard. Enzymatic Reactions Observed with Zero- and Low-Field Nuclear Magnetic Resonance. 65th Experimental NMR Conference (ENC) and International Society of Magnetic Resonance (ISMAR) Conference. April 7, 2025 in Asilomar, CA, USA.

[93] J. W. Blanchard. Progress of the Cosmic Axion Spin Precession Experiment (CASPEr). 61st Experimental NMR Conference (ENC). March 12, 2020 in Baltimore, MD, USA.

[94] J. W. Blanchard for the CASPEr Collaboration. NMR Meets Dark Matter: The Cosmic Axion Spin Precession Experiment (CASPEr). ISMAR 2017. July 26, 2017 in Quebec City, Canada.

[95] J. W. Blanchard for the CASPEr Collaboration. Status of the Cosmic Axion Spin Precession Experiment (CASPEr). 13th Patras Workshop on Axions, WIMPs & WISPs. May 15, 2017 in Thessaloniki, Greece.

[96] J. W. Blanchard for the CASPEr Collaboration. NMR Meets Dark Matter: The Cosmic Axion Spin Precession Experiment (CASPEr). EUROMAR 2016. July 7, 2016 in Aarhus, Denmark.

[97] J. W. Blanchard. Direct Observation of Nonsecular Couplings via Zero-Field NMR. ISMAR 2015. August 17, 2015 in Shanghai, China.

[98] J. W. Blanchard. Measurement of Untruncated Nuclear Spin Interactions via Zero- to Ultra-Low-Field NMR. EUROMAR 2015. July 7, 2015 in Prague, Czech Republic.

[99] J. W. Blanchard. Developments in Zero-Field NMR for Chemical Analysis. EUROMAR 2013. July 3, 2013 in Hersonissos, Crete, Greece.

[100] J. W. Blanchard. NMR Characterization of Translational Dynamics in Triethylammonium-Based Protic Ionic Liquids. EUCHEM Conference on Molten Salts and Ionic Liquids. March 18, 2010 in Bamberg, Germany.

Invited Seminars

[101] J. W. Blanchard. Entanglement-enhanced NMR at zero magnetic field. UCLA "Big Quantum Biology" Meeting. April 12, 2021. Online.

[102] J. W. Blanchard. Lower than Low: Introducing Zero- to Ultralow-Field (ZULF) NMR. Global NMR Discussion Meeting. June 12, 2020, online.

[103] J. W. Blanchard. Measuring the "Impossible" with Nuclear Magnetic Resonance (NMR): Zero-Field NMR, Molecular Parity Violation, and Ultralight Dark Matter. New York University. March 17, 2020 in New York City and online.

[104] J. W. Blanchard. Measuring the Unmeasurable with Nuclear Magnetic Resonance (NMR): Zero-Field NMR, Dark Matter, and Molecular Parity Violation. University of Illinois at Urbana-Champaign, Materials Chemistry Seminar. January 29, 2020 in Urbana, IL.

[105] J. W. Blanchard. Measuring the Unmeasurable with Nuclear Magnetic Resonance (NMR): Molecular Parity Violation, Dark Matter, and Zero-Field NMR. Brandeis University Chemistry Department Seminar. January 12, 2020 in Waltham, MA.

Invited Public Lectures

[106] J. W. Blanchard. Magnetic Resonance: Quantum Medicine and Quantum Sensing. Howard County Innovation Summit. June 3, 2025 in Laurel, MD, USA.

[107] J. W. Blanchard for the CASPEr Collaboration. NMR Meets Dark Matter: The Cosmic Axion Spin Precession Experiment (CASPEr). IoP Public Lecture. October 26, 2016 in Leeds, UK.

Teaching Experience

University of California, Berkeley, Berkeley, CA

Head Graduate Student Instructor **Spring 2013**

- Head Graduate Student Instructor for Chemistry 1A
  - Delivered introductory chemistry lectures to 800+ undergraduate students
  - Developed instructional materials, exams, and demonstrations
  - Implemented hybrid in-person/online course design
  - Oversaw a team of Graduate Student Instructors

Graduate Student Instructor **Fall 2010 and Spring 2012**

- Graduate Student Instructor for Chemistry 1A
  - Direction of introductory chemistry laboratory and discussion sessions.

Student Mentoring

Quantum Technology Center, University of Maryland, College Park, MD **2022 – Current**

- 11 graduate students, 2 postdoctoral researchers

Helmholtz-Institut Mainz, Johannes Gutenberg Universität, Mainz, Germany **2015 – 2020**

- 8 Doctoral, 6 Masters students

Service

Reviewer for ACS, APS, AIP, RSC, AAAS, Elsevier, Springer Nature, US National Science Foundation, Polish National Science Center, and European Research Council

Academic Unit Review Committee, Institute for Research in Electronics and Applied Physics (IREAP), University of Maryland **2025**

Independent assessment panelist for National Nuclear Security Administration, US Department of Energy **2024**

Member of Supervisory Board for ZULF ITN Collaboration Network **2018 – 2020**

- Marie Skłodowska-Curie Innovative Training Network for zero- to ultralow-field nuclear magnetic resonance

Bay Area Scientists in Schools (BASIS), **2011 – 2014**

- Outreach

Graduate Life Committee, **2011 – 2014**
- Student advocacy

FUNDING

Army Research Office. W911NF- 24-2-0143 **07/2024 – Current**
- Solid-State Quantum Sensors: Investigation and Optimization for DOD Relevant Applications. $3,190,210. *Key Personnel*.

Army Research Office. W911NF-21-2-0110 **05/2021 – 08/2024**
- Enabling solid-state quantum sensors with reduced SWAP for DoD applications. Army Research Office. $590,344. *Key Personnel*.

AWARDS

Hermann von Helmholtz Association of German Research Centres
- 2021 Erwin Schrödinger Prize
  - ◇ For "Major advances in nuclear magnetic resonance and magnetic resonance imaging"

Helmholtz Association
- Helmholtz Postdoc Programme, 2015 – 2018

EUROMAR 2014
- Student Travel Grant

John Wiley & Sons
- MRC Award for Young Scientists, 2013

National Science Foundation
- Graduate Research Fellow, 2012 – 2014

University of California, Berkeley
- Outstanding Graduate Student Instructor, 2014
- Thelma E. Buchanan Scholarship, 2010 – 2011
- Chemistry Department Scholar, 2010

Arnold and Mabel Beckman Foundation
- Beckman Scholar, 2009 – 2010

Arizona State University
- Hypercube Award, 2010
- Therald Moeller Award, 2007