Curriculum Vitae

Susumu Takahashi, Ph. D.
Associate Professor
Department of Chemistry
University of Southern California, Los Angeles, CA 90089-0744
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E-mail: susumuta@usc.edu Homepage: http://singlespin.usc.edu/

Education

2001/8-2005/12	Ph.D. in Physics, University of Florida (2005 Dec.) Advisor: Prof. Stephen O. Hill (Currently at NHMFL, Florida State University)
1995/4-1997/3	M.S. in Physics, Aoyama-Gakuin University, Tokyo, Japan Advisor: Prof. Duk Joo Kim
1991/4-1995/3	B.S. in Physics, Aoyama-Gakuin University, Tokyo, Japan Advisor: Prof. Duk Joo Kim

Appointments

2017/2-present	Associate Professor (Tenured) of Chemistry and Physics & Astronomy University of Southern California
2010/8-2017/2	Assistant Professor of Chemistry and Physics & Astronomy University of Southern California
2008/1-2010/7	Project Scientist (Sherwin group) Department of Physics/Institute for Terahertz Science and Technology (ITST) University of California at Santa Barbara (UCSB)
2006/1-2007/12	Postdoctoral Scholar, Physics/ITST, UCSB Advisor: Prof. Mark S. Sherwin
1997/4-2001/6	Engineer, Semiconductor and Integrated Circuits, Hitachi Ltd.

Awards

2012 Searle Scholar Award
2011 Zumberge research and innovation fund individual award
University of Southern California
2004 Tom Scott memorial award for the best experimental Ph.D. research
University of Florida

Publications

Under USC affiliation (with **DOI** links. Also to be found at http://singlespin.usc.edu/. Corresponding author(s) is indicted by "†".

Submitted papers

17. *Investigation of coherence time of a nitrogen-vacancy center in diamond created by a low energy nitrogen implantation*
C. Abeywardana, Z. Peng, L. C. Mugica, E. Kleinsasser, K.-M. C. Fu and S. Takahashi†
Submitted (2016);
16. *High-frequency electron paramagnetic resonance spectroscopy of surface paramagnetic impurities in nanodiamond*
F. H. Cho, V. Stepanov, R. D. Akiel, X. Zhang and S. Takahashi†

Submitted (2016);

Published/accepted papers in refereed journals

15. *Electron spin resonance spectroscopy of small ensemble paramagnetic spins using a single nitrogen-vacancy center in diamond*
C. Abeywardana, V. Stepanov, F. H. Cho and S. Takahashi†
J. Appl. Phys. **120** , 123907 (2016) [doi]
14. *Measurement of paramagnetic spin concentration in a solid-state system using double electron-electron resonance*
V. Stepanov and S. Takahashi†
Phys. Rev. B, **94**, 024421 (2016); [doi]
13. *High-frequency electron paramagnetic resonance spectroscopy of nitroxide-functionalized nanodiamonds in aqueous solution*
R. D. Akiel, V. Stepanov and S. Takahashi†
Cell Biochem. Biophys. (2016); [doi]
12. *Investigating functional DNA grafted on nanodiamond surface using spin-labeling and electron paramagnetic resonance spectroscopy*
R. Akiel, X. Zhang, C. Abeywardana, V. Stepanov, P. Z. Qin† and S. Takahashi†
J. Phys. Chem. B, **120**, 4003-4008 (2016); [doi]
11. *Spin coherence in a Mn3 single-molecule magnet*
C. Abeywardana, A. M. Mowson, G. Christou, and S. Takahashi†
Appl. Phys. Lett., **108**, 042401 (2016); [doi]
10. *230/115 GHz electron paramagnetic resonance/double electron-electron resonance spectroscopy*
F. H. Cho,* V. Stepanov* and S. Takahashi†
Methods in Enzymology, **563**, 95-118 (2015); [doi]
9. *High-frequency and high-field optically detected magnetic resonance of nitrogen-vacancy centers in diamond*
V. Stepanov,* F. H. Cho, C. Abeywardana and S. Takahashi†
Appl. Phys. Lett. **106**, 063111 (2015); [doi]
8. *Magnetic resonance spectroscopy using a single nitrogen-vacancy center in diamond*
C. Abeywardana,* V. Stepanov,* F. H. Cho and S. Takahashi†
Proc. SPIE **9269**, 92690K (2014); [doi]
7. *A high-frequency electron paramagnetic resonance spectrometer for multi-dimensional, -frequency and -phase pulsed measurements*
F. H. Cho, V. Stepanov and S. Takahashi†
Rev. Sci. Instrum. **85**, 075110 (2014) [doi]
6. *Low temperature synthesis and characterization of Lanthanide-doped $BaTiO_3$ nanocrystals*
S. P. Culver, V. Stepanov, M. Mecklenburg, S. Takahashi and R. L. Brutchey†
Chem. Commun. **50**, 3480-3483 (2014) [doi]
5. *Grafting nitroxide radicals on nanodiamond surface using click chemistry*
E. E. Romanova, R. Akiel, F. H. Cho and S. Takahashi†
J. Phys. Chem. A **117**, 11933-11939 (2013) [doi]
4. *Spin decoherence and electron spin bath noise of a nitrogen-vacancy center in diamond*
Z. –H. Wang and S. Takahashi†
Phys. Rev. B **87**, 115122 (2013) [doi]
3. *Free-electron laser-powered pulsed electron paramagnetic resonance spectroscopy*

S. Takahashi, L.-C. Brunel, D. T. Edwards, J. van Tol, G. Ramian, S. Han and M. S. Sherwin†
Nature **489**, 409-413 (2012) [doi]

2. *Distance measurements across randomly distributed nitroxide probes from the temperature dependence of the electron spin phase memory time at 240 GHz*
D. T. Edwards, S. Takahashi, M. S. Sherwin and S. Han†
J. Mag. Res. **223**, 198-206 (2012) [doi]

1. *Decoherence in crystals of quantum molecular magnets*
S. Takahashi,† I. S. Tupitsyn, J. van Tol, C. C. Beedle, D. N. Hendrickson, and P. C. E. Stamp†
Nature **476**, 76-79 (2011) [doi]

Prior to USC

21. *Cavity dumping of an injection-locked free-electron laser*
S. Takahashi, G. Ramian, and M. S. Sherwin
Appl. Phys. Lett. **95***,* 234102 (2009) [doi]

20. *Coherent manipulation and decoherence of S=10 single-molecule magnets*
S. Takahashi, J. van Tol, C. C. Beedle, D. N. Hendrickson, L.-C. Brunel and M. S. Sherwin
Phys. Rev. Lett. **102**, 087603 (2009) [doi]

19. *High-field phenomena of qubits*
J. van Tol, G. W. Morley, S. Takahashi, D. R. McCamey, C. Boehme, M. E. Zvanut
Appl. Mag. Res. **36**, 259-268 (2009) [doi]

18. *Quenching spin decoherence in diamond through spin bath polarization*
S. Takahashi, R. Hanson, J. van Tol, M. S. Sherwin and D. D. Awschalom
Phys. Rev. Lett. **101**, 047601 (2008) [doi]

17. *Large Mn25 single-molecule magnet with spin S=51/2: magnetic and high-frequency electron paramagnetic resonance spectroscopic characterization of a giant spin state*
M. Murugesu, S. Takahashi, A. Wilson, K. A. Abboud, W. Wernsdorfer, S. Hill and G. Christou
Inorg. Chem. **47**, 9459-9470 (2008) [doi]

16. *Pulsed EPR spectrometer with injection-locked UCSB free-electron laser*
S. Takahashi, D.G. Allen, J. Seifter, G. Ramian, M. S. Sherwin, J. van Tol, L.-C. Brunel
Infrared Phys. Technol. **55**, 426-428 (2008) [doi]

15. *Submegahertz linewidth at 240 GHz from an injection-locked free-electron laser*
S. Takahashi, G. Ramian, M. S. Sherwin, L.-C. Brunel and J. van Tol
Appl. Phys. Lett. **91**, 174102 (2007) [doi]

14. *A diffraction-compensating 0-25 ns free space terahertz delay line for coherent quantum control*
D. G. Allen, L. Persechini, S. Takahashi, G. Ramian and M. S. Sherwin
Rev. Sci. Instrum. **78**, 113103 (2007) [doi]

13. *Are Lebed's magic angles truly magic?*
S. Takahashi, A. Betancur-Rodiguez, S. Hill, S. Takasaki, J. Yamada and H. Anzai
J. Low Temp. Phys. **142**, 311-314 (2006) [doi]

12. *Study of non-magnetic impurity effects of the organic superconductor $(TMTSF)_2ClO_4$*
S. Takahashi, S. Hill, S. Takasaki, J. Yamada and H. Anzai
AIP Conf. Proc. **850**, 619 (2006) [doi]

11. *Periodic-orbit resonance in the quasi-1D organic superconductor $(TMTSF)_2ClO_4$*
S. Takahashi, S. Hill, S. Takasaki, J. Yamada and H. Anzai

Phys. Rev. B **72**, 024540 (2005) [doi]

10. *A rotating cavity for high-field angle-dependent microwave spectroscopy of low-dimensional conductors and magnets*
S. Takahashi and S. Hill
Rev. Sci. Instrum. **76**, 023114 (2005) [doi]

9. *Angle-resolved mapping of the Fermi velocity in quasi-two-dimensional conductors and superconductors: probing quasiparticles in nodal superconductors*
S. Takahashi and S. Hill
J. Appl. Phys. **97**, 10B106 (2005) [doi]

8. *Fermi surface studies of quasi-1D and quasi-2D organic superconductors using periodic orbit resonances in high magnetic fields*
S. Takahashi, A. E. Kovalev, S. Hill, S. Takasaki, J. Yamada, H. Anzai, J. S. Qualls, K. Kawano, M. Tamura, T. Naito and H. Kobayashi
International Journal of Modern Physics B **18**, 3499-3504 (2004) [doi]

7. *A comparison between high-symmetry Mn_{12} single-molecule magnets in different ligand/solvent environments*
S. Hill, N. Anderson, A. Wilson, S. Takahashi, K. Petukhov, N. E. Chakov, M. Murugesu, J. M. North, E. del Barco, A. D. Kent, N. S. Dalal, and G. Christou
Polyhedron **24**, 2280-2292 (2005) [doi]

6. *A spectroscopic comparison between several high-symmetry S = 10 Mn_{12} single-molecule magnets*
S. Hill, N. Anderson, A. Wilson, S. Takahashi, N. E. Chakov, M. Murugesu, J. M. North, N. S. Dalal, and G. Christou
J. Appl. Phys. **97**, 10M510 (2005) [doi]

5. *Discrete easy-axis tilting in Mn_{12}-acetate, as determined by EPR: implications for the magnetic quantum tunneling mechanism*
S. Takahashi, R. S. Edwards, J. M. North, S. Hill and N. S. Dalal
Phys. Rev. B **70**, 094429 (2004) [doi]

4. *Temperature dependence of the Josephson plasma resonance between vortex phases in the organic superconductor κ-(BEDT-TTF)$_2$Cu(NCS)$_2$*
D. K. Benjamin, S. Takahashi, S. Hill and J. S. Qualls
Solid State Commun. **131**, 719-723 (2004). [doi]

3. *High field high frequency EPR techniques and their application to single molecule magnets*
R. S. Edwards, S. Hill, P. Goy, R. Wylde and S. Takahashi
Physica B **346-347**, 211-215 (2004) [doi]

2. *Effect of an in-plane magnetic field on the interlayer phase coherence in the extreme-2D organic superconductor κ-(BEDT-TTF)$_2$Cu(NCS)$_2$*
A. E. Kovalev, S. Takahashi, S. Hill and J. S. Qualls
Int. J. Mod. Phys. B **17**, 3547 (2003) [doi]

1. *Periodic orbit resonance in (TMTSF)$_2$ClO$_4$*
A. E. Kovalev, S. Hill, S. Takahashi, T. N. Dhakal, S. Takasaki, J. Yamada H. Anzai and J. S. Brooks
J. Appl. Phys. **93**, 8665-8667 (2003) [doi]

Book Chapters

1. *Microwave spectroscopy of Q1D and Q2D organic conductors*
S. Hill and S. Takahashi

in The Physics of Organic Superconductors and Conductors, A. G. Lebed (eds.), Springer, New York (2008) [ISBN: 978-3-540-76667-4] [arXiv:condmat/0608490]

Papers in non-refereed journals

5. *Coherent manipulation and decoherence of S=10 single-molecule magnets*
   S. Takahashi, J. van Tol, C. C. Beedle, D. N. Hendrickson, L.-C. Brunel and M. S. Sherwin
   Selected for the *Mag Lab Reports* highlights issue in Volume6 Issue 2 2009 [link]
4. *Quenching spin decoherence in diamond through spin bath polarization*
   S. Takahashi, R. Hanson, J. van Tol, M. S. Sherwin and D. D. Awschalom
   Selected for the *Mag Lab Reports* highlights issue in Volume6 Issue 2 2009 [link]
3. *The UCSB MM-FEL injection locking system*
   G. Ramian, S. Takahashi and M. S. Sherwin
   Proceeding of FEL 2007, Novosibirsk, Russia (2007) [link]
2. *A method to study angle-dependent high field microwave magneto-conductivity using a cavity perturbation technique*
   S. Takahashi and S. Hill
   Selected for the *NHMFL Reports* highlights issue in Volume11 Issue 1 2004 [link]
1. *Probing the Fermi surfaces of quasi-two-dimensional organic superconductors by high field resonant microwave conductivity technique*
   S. Takahashi, K. Petukhov, A. E. Kovalev, D. Benjamin, S. Hill, J. S. Qualls, K. Kawano, M. Tamura, T. Naito and H. Kobayashi
   Selected in the *NHMFL Reports* highlights issue in Volume11 Issue 1 2004 [link]

Presentations-Under USC affiliation

Colloquia/Seminars

21. Physical Chemistry Seminar, University of Southern California (September 2016)
20. Physics Seminar, Institute of Solid State Physics, University of Tokyo, Japan (June 2016)
19. Physics Seminar, Keio University, Japan (June 2016)
18. Physics Seminar, Kobe University, Japan (June 2016)
16. Chemistry Seminar, UC Berkeley (April 2016)
16. Physical Chemistry seminar, UC Santa Barbara (April 2016)
15. Physical Chemistry seminar, UC Davis (March 2016)
14. Physical Chemistry seminar, Argonne Nat. Lab. (December 2015)
13. Physical Chemistry seminar, Department of Chemistry, Rice Univ. (December 2015)
12. Physics Seminar, Department of Physics, Univ. of Dortmund (September 2015)
11. Condensed Matter Physics Seminar, Department of Physics, UCLA (November 2014)
10. Chemistry Seminar, School of Chemistry and Chemical Engineering, Sun Yat-Sen University, Guangzhou, China (October 2014)
9. Condensed Matter Physics Seminar, Department of Physics, University of Florida (September 2014)
8. Condensed Matter Seminar, National High Magnetic Field Laboratory, Florida State University (September 2014)
7. Condensed Matter Seminar, Department of Physics, University of Utah (April 2014)
6. Chemistry Colloquium, Department of Chemistry, North Carolina State University (February 2014)
5. Physical Seminar, Department of Chemistry, University of North Carolina (February 2014)

4. Physics Colloquium, Department of Physics, California State University at Los Angeles (February 2014)
3. Physical Chemistry Seminar, Department of Chemistry, University of Washington (May 2012)
2. Colloquium, Department of Physics, UC Santa Barbara (November 2011)
1. Colloquium, Department of Physics, University of Southern California (September 2011)

Invited talks

13. Asia-Pacific EPR/ESR symposium 2016, Irkutsk, Russia (August 2016)
12. The Pacifichem, Honolulu, HI (December 2015)
11. The German UK magnetic resonance meeting, Darmstadt Germany (September 2015)
10. The diamond quantum sensing workshop, Takamatsu, Japan (August 2015)
9. The Searle scholar meeting, Chicago IL (Apr. 2015)
8. ACS meeting, Denver, CO (Mar. 2015).
7. SPIE/COS Photonics Asia conference 2014, Beijing, China (October 2014)
6. The 55th experimental nuclear magnetic resonance conference (ENC), Boston, MA (March 2014)
5. The 55th Rocky mountain conference, Denver, CO (August 2013).
4. The 54th Rocky mountain conference, Copper mountain, CO (Jul. 2012)
3. The 2012 Stauffer symposium at USC, Los Angeles, CA (Apr. 2012)
2. The quantum science symposium, Cambridge, MA (Sep. 2011)
1. The quantum coherent properties of spin III workshop, Orlando, FL (Dec. 2010)

Contributed talks

1. S. Takahashi, *Quantum coherence in Mn-based single molecule magnets,* The 57th Rocky mountain conference, Snowbird, UT (July 2015).

Contributed talks by my group members (**"†"** indicates the speaker.)

16. C. Abeywardana,† Z.-L. Peng and S. Takahashi, *Development of nanoscale ESR techniques using nitrogen-vacancy centers in diamond,* The APS March meeting, New Orleans, LA (March 2017).
15. Z.-L. Peng† and S. Takahashi, *High-frequency EPR of surface impurities on nanodiamond,* The APS March meeting, New Orleans, LA (March 2017).
14. L. Mugica† and S. Takahashi, *Nanoscale magnetic resonance spectroscopy using nitrogen-vacancy centers in diamond,* The USC-IME presentation, Los Angeles, CA (August 2016).
13. C. Abeywardana† and S. Takahashi, *EPR spectroscopy using nitrogen-vacancy centers in diamond,* The 58th Rocky mountain conference, Breckenridge, CO (July 2016).
12. V. Stepanov† and S. Takahashi, *Measurement of paramagnetic spin concentration in a solid-state system using double electron-electron resonance,* The 58th Rocky mountain conference, Breckenridge, CO (July 2016).
11. C. Abeywardana,† A. Mowson, G. Christou and S. Takahashi, *Quantum coherence in Mn-based single molecule magnets,* The APS March meeting, Baltimore, MD (March 2016).
10. V. Stepanov,† F. Cho, R. Akiel and S. Takahashi, *High-frequency optically detected magnetic resonance of nitrogen-vacancy centers in diamond,* The APS March meeting, Baltimore, MD (March 2016).

9. V. Stepanov,† F. Cho, R. Akiel and S. Takahashi, *High-frequency optically detected magnetic resonance of nitrogen-vacancy centers in diamond,* The 57th Rocky mountain conference, Snowbird, UT (July 2015)
8. C. Abeywardana,† F. Cho, A. Mowson, G. Christou and S. Takahashi, *Quantum coherence in Mn-based single molecule magnets,* APS meeting, San Antonio, TX (Mar. 2015)
7. V. Stepanov,† F. Cho, C. Abeywardana, R. Akiel and S. Takahashi, *High-field optically detected magnetic resonance of a single nitrogen-vacancy center in diamond,* APS meeting, San Antonio, TX (Mar. 2015)
6. F. Cho,† C. Abeywardana, R. Akiel, V. Stepanov and S. Takahashi, *High-frequency EPR and DEER spectroscopy to study impurities in nanodiamonds*, The 2014 APS March meeting, Denver, CO (March 2014)
5. F. Cho,† and S. Takahashi, *Impurities and electron spin relaxations in nanodiamonds studied by multi-frequency electron spin resonance*, The 2014 APS March meeting, Denver, CO (March 2014)
4. C. Abeywardana,† V. Stepanov and S. Takahashi, *Study of a single nitrogen-vacancy center in diamond to detect surrounding electron spins*, The 2014 APS March meeting, Denver, CO (March 2014)
3. E. E. Romanova,† F. Cho, V. Stepanov and S. Takahashi, *Development of a high-field electron paramagnetic resonance spectrometer*, The 2012 APS March meeting, Cambridge, MA (Feb. 2012)
2. Z. H. Wang,† A. Das, D. Lidar and S. Takahashi, *Noises of spin baths for qubits in diamond*, The 2012 APS March meeting, Cambridge, MA (Feb. 2012)
1. A. Das,† E. E. Romanova, X. Zhang and S. Takahashi, *Investigating spin decoherence in nanodiamonds using a multi-frequency electron spin resonance*, The 2012 APS March meeting, Cambridge, MA (Feb. 2012)

Poster presentations by my group members and myself (**"**†**"** indicates the presenter.)

38. *Pulse-shaping for optically detected magnetic resonance*
    B. D. Fortman† and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (March 2017)
37. *Nanoscale EPR using nitrogen-vacancy centers in diamond*
    C. Abeywardana,† Z. Peng and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (March 2017)
36. *High frequency paramagnetic resonance spectroscopy of surface impurities on nanodiamond*
    Z. Peng,† V. Stepanov and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (March 2017)
35. *Measurement of paramagnetic spin concentration in a solid-state system using double electron-electron resonance*
    V. Stepanov† and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (March 2017)
34. *FTIR characterization of Copper click reaction between nanodiamond and Gd-DOTA*
    M. Solano,† R. Akiel and S. Takahashi
    The USC YRP presentation, Los Angeles, CA (April 2016)
33. *Apparatus for coherence studies on a covalently linked dimer of Mn_3 single-molecule magnets*
    S. Smoker,† C. Abeywardana and S. Takahashi
    The USC-REU presentation, Los Angeles, CA (August 2016)

32. *Toward nanoscale magnetic resonance spectroscopy using nitrogen-vacancy centers in diamond*
    L. Mugica,† Z. L. Peng and S. Takahashi
    The USC-REU presentation, Los Angeles, CA (August 2016)
31. *Measurement of paramagnetic spin concentration in a solid-state system using double electron-electron resonance*
    V. Stepanov† and S. Takahashi
    The 58th Rocky mountain conference, Breckenridge, CO (July 2016)
30. *Nanoscale electron spin resonance spectroscopy using single nitrogen-vacancy centers in diamond*
    C. Abeywardana,† V. Stepanov and S. Takahashi
    The 58th Rocky mountain conference, Breckenridge, CO (July 2016)
29. *Dynamics of molecule tethered to nanodiamond surface*
    R. D. Akiel,† V. Stepanov and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (April 2016)
28. *Decoherence mechanisms in a Mn3 single-molecule magnet*
    C. Abeywardana,† A. Mowson, G. Christou and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (April 2016)
27. *Preparation of a nitrogen-vacancy center on diamond surface*
    Z. Peng,† C. Abeywardana and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (April 2016)
26. *Controlling fluorescence intensity of nanodiamonds*
    W. H. Chen† and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (April 2016)
25. *Electron paramagnetic resonance spectroscopy of a small ensemble of spins using a single nitrogen-vacancy center in diamond*
    C. Abeywardana,† V. Stepanov, F. H. Cho and S. Takahashi†
    The diamond quantum sensing workshop, Takamatsu, Japan (August 2015)
24. *Observing interaction between nanodiamonds and magnetic environments through fluorescence measurement*
    W. H. Chen† and S. Takahashi
    The USC REU presentation, Los Angeles, CA (August 2015)
23. *High field electron paramagnetic resonance on liquid samples*
    M. Moreno,† V. Stepanov and S. Takahashi
    The USC Young Researcher Program presentation, Los Angeles, CA (August 2015)
22. *Building a confocal microscope for imaging fluorescent nanodiamond*
    J. Rojas-Gamino,† R. D. Akiel and S. Takahashi
    The USC Young Researcher Program presentation, Los Angeles, CA (August 2015)
21. *Quantum coherence in Mn-based single molecule magnets*
    C. Abeywardana,† A. Mowson, G. Christou and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (April 2015)
20. *High-frequency electron-nuclear double resonance spectroscopy*
    F. Cho,† V. Stepanov and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (April 2015)
19. *Copper free click chemistry as a tool to graft DNA molecules on the surface of nanodiamonds*
    R. Akiel,† C. Abeywardana and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (April 2015)

18. *Nanoscale electron paramagnetic resonance spectroscopy at high magnetic fields*
    V. Stepanov,† C. Abeywardana, F. Cho, R. Akiel and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (April 2015)
17. *Grafting of nitroxide radicals on nanodiamond surface*
    J. Gramajo,† R. Akiel and S. Takahashi
    The USC Young Researcher Program presentation, Los Angeles, CA (August 2014)
16. *Functionalize bulk diamond with ion oxide nanoparticles to sense through NV center*
    Z. Peng,† C. Abeywardana and S. Takahashi
    The USC REU presentation, Los Angeles, CA (August 2014)
15. *Nanoscale EPR spectroscopy using a single spin diamond probe*
    C. Abeywardana,† V. Stepanov, R. Akiel, F. H. Cho and S. Takahashi†
    The 56th Rocky mountain conference 2014, Copper mountain, CO (July 2014)
14. *Study of a single nitrogen-vacancy center in diamond to detect surrounding electron spin environment*
    C. Abeywardana,† V. Stepanov and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (April 2014)
13. *Grafting DNA on the surface of Nanodiamond*
    R. Akiel,† C. Abeywardana and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (April 2014)
12. *Magnetic resonance spectroscopy of nanoscale environment of single nitrogen-vacancy center in diamond*
    V. Stepanov,† C. Abeywardana and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (April 2014)
11. *Development of a magnetic resonance system for studying single bio-molecule at physiological condition*
    S. Takahashi†
    The Searle Scholars Meeting, Chicago, IL (April 2014)
10. *Grafting nitroxide radicals on nanodiamond surface using click chemistry*
    R. Akiel,† F. H. Cho and S. Takahashi
    NanoSymposium 2013, Los Angeles, CA (October 2013)
9. *Impurities and spin relaxations in nanodiamonds*
    F. H. Cho,† R. Akiel and S. Takahashi
    The 55th Rocky mountain conference, Denver, CO (August 2013)
8. *Toward single-molecule magnetic resonance spectroscopy*
    S. Takahashi†
    The Searle Scholars Meeting, Chicago, IL (April 2013)
7. *Grafting nitroxide radicals on nanodiamond surface*
    F. H. Cho,† R. D. Akiel, E. E. Romanova and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (April 2013)
6. *Investigating spin properties of nanodiamonds using electron spin resonance*
    A. Das,† E. E. Romanova, X. Zhang and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (April 2012)
5. *Optically detected electron spin resonance of nitrogen-vacancy center in diamond*
    V. Stepanov,† Z. Kobos and S. Takahashi
    The USC Stauffer symposium, Los Angeles, CA (April 2012)
4. *Studying the dynamics of DNA using site-directed spin labeling and continuous wave EPR*
    D. Brown,† E. E. Romanova and S. Takahashi
    The USC REU presentation, Los Angeles, CA (August 2011)

3. *Simulating the EPR spectrum of nitrogen impurities in diamond crystals*
   Z. Kobos,† A. Das and S. Takahashi
   The USC REU presentation, Los Angeles, CA (August 2011)
2. *Electron paramagnetic resonance in diamond crystals*
   T. Duarte,† A. Das and S. Takahashi
   The USC Young Researcher Program presentation, Los Angeles, CA (August 2011)
1. *Overcoming spin decoherence of NV centers in diamond using high magnetic fields*
   A. Das† and S. Takahashi
   The Quantum Error Correction 2011, Los Angeles, CA (December 2011)

Teaching experience

13. 2017 Spring: CHEM 332L, Physical chemical measurements
12. 2016 Fall: CHEM 544, Introduction to quantum chemistry
11. 2016 Spring: CHEM 332L, Physical chemical measurements
10. 2015 Fall: CHEM 544, Introduction to quantum chemistry
9. 2015 Spring: CHEM 332L, Physical chemical measurements
8. 2014 Fall: CHEM 550: Special topics in quantum mechanics
7. 2013 Fall: CHEM 550: Special topics in chemical physics: magnetic resonance spectroscopy
6. 2013 Spring: CHEM 332L, Physical chemical measurements
5. 2012 Fall: CHEM 544, Introduction to quantum chemistry
4. 2012 Spring: CHEM 550, Special topics in chemical physics: magnetic resonance spectroscopy
3. 2011 Spring: CHEM 332L, Physical chemical measurements
2. 2011 Spring: CHEM 575, Modern trends in physical chemistry
1. 2010 Fall: CHEM 115A, Advanced general chemistry I

Advisees

Postdocs

Dr. Ekaterina E. Romanova (Mar. 2011-Mar. 2013, Software engineer)
- 2012 USC Women in Science and Engineering Merit Award

Dr. Zhihui Wang (Sep. 2011-Aug. 2012, Research scientist at NASA)

Ph.D. students

Viktor Stepanov (Chemistry, Jan. 2011-present, Ph.D. 2017 May (Expected))
- 2016 Travel Award in Rocky Mountain Conference, Breckenridge CO
- 2016 USC Chemistry Travel Award

Chathuranga Abeywardana (Chemistry, Sep. 2011-present)
- 2017 USC Chemistry Michael Dulligan Graduate Student Award
- 2015 USC Chemistry Research Award

Zaili (Sharon) Peng (Chemistry, Jan. 2016-present)

Benjamin Fortman (Chemistry, Jan. 2017-present)

Rana Akiel (Chemistry, Jan. 2012-present, Ph.D. 2016,
Visiting Scholar – USC Teaching Faculty)
- 2016 USC Chemistry Michael Dulligan Graduate Student Award
- 2015 USC Department of Chemistry Advanced Fellowship
- 2015 USC Stauffer Endowed Fellowship

- 2013 USC Chemistry Teaching Award

Franklin Cho (Physics, Sep. 2011-Jun. 2015, Ph.D. 2015,
Postdoc in Institute for Quantum Computing at University of Waterloo)
- 2013 USC College Merit Fellowship
- 2012 USC College Merit Fellowship

Drew Henry (Physics, May 2016-Sep. 2016)

Anirban Das (Physics, Dec. 2010-May 2012)
- 2011 Poster Award in Quantum Error Correction Conference, Los Angeles CA

Undergraduates

Samuel Smoker (Physics, Jan. 2015-Mar. 2017)
- 2016 Summer USC SURF
- 2015 Summer USC SURF (decline)

Laura Mugica (2016 USC-IME (Institute of Mexican Abroad) Summer Internship)

Jack O'Grady (Physics, May. 2016-Aug. 2016, Class of 2019)
- 2016 Summer USC SURF

Wan Hsiang Chen (Biochemistry, Jun. 2015-May 2016, B.S. 2016)
- 2016 Spring USC Provost Fellowship
- 2015 Fall USC Provost Fellowship

Andrew Maney (Physics, Oct. 2015-May 2016)

Jack Runburg (Physics, Nov. 2014-May 2016)

Zaili (Sharon) Peng (2014 USC Chemistry REU, Ph.D. student in my group)

Jason Michael (Chemistry, Jan. 2013-May 2014, B.S. 2014, Ph.D. student at UT Austin)
- 2013 Summer USC SURF

Zak Kobos (Physics, May 2011-May 2013, B.S. 2013, Ph.D. student at Yale University)
- 2013 Spring Provost Fellowship
- 2012 Fall USC Provost Fellowship
- 2012 Summer USC Provost Fellowship
- 2012 Spring Provost Fellowship
- 2011 Fall USC Provost Fellowship
- 2011 Summer USC SURF

Dalilah Brown (2011 USC Chemistry REU)

Kevin Le (Jul. 2011-Jan. 2012)

Michael Oh (Sep. 2010-May 2011)

David Lee (Jan. 2011 – May 2011)

High school students

Mirna Solano (2016 USC Young Researchers Program Student)

Mike Moreno (2015 USC Young Researchers Program Student)

Josceline Rojas-Gamino (2015 USC Young Researchers Program Student)

Jacqueline Gramajo (2014 USC Young Researchers Program Student)

Teresa Duarte (2011 USC Young Researchers Program Student)

Service

1. The organizing committee of the Rocky Mountain Conference on Magnetic Resonance (2015-present)

2. Supervisor for the USC SCience Outreach club (SCout) (2011-present)
3. USC Dornsife/Viterbi Machine Shop Oversight committee (2015-present)
4. USC Chemistry Department Safety committee (2015-present)
5. USC Chemistry Department Curriculum committee (2016-present)
6. USC Physics tenure-track faculty hiring committee (2015-2016 and 2016-2017)