

Publications

Under USC affiliation (with DOI links. Also to be found at <http://singlespin.usc.edu/>.)

Submitted papers

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 Enzymol., **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 BaTiO₃ 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 Mn^{25} 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. Seiffter, 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-Rodriguez, 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)₂ClO₄*
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)₂ClO₄*
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 Mn₁₂ 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 Mn₁₂ 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 Mn₁₂-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)₂Cu(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)₂Cu(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)₂ClO₄*
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](#)]