

Curriculum Vitae

Stephen Adrian McGill

January 23, 2018

General Information

University address: National High Magnetic Field Laboratory
National High Magnetic Field Laboratory
MAG LAB - GENERAL SCIENCA0300
Florida State University
Tallahassee, Florida 32306-2740
Phone: 850/644-5890

E-mail address: mcgill@magnet.fsu.edu

Professional Preparation

2004 PhD, University of Pennsylvania. Major: Physics.
2004 MS, University of Pennsylvania. Major: Physics.
1998 BS, West Chester University. Major: Physics.

Professional Experience

2012–present Research Fac II 12Mo, NATL HIGH MAGNETIC FIELD LAB, Florida State
University.
2006–2012 Research Faculty I, National High Magnetic Field Laboratory, Florida State
University.
2005–2006 Postdoctoral Scholar, CENTER FOR MATERIALS RESEARCH, Florida
State University.

Current Membership in Professional Organizations

American Physical Society

Teaching

Courses Taught

Directed Individual Study (PHY5909)

Directed Individual Study (PHY5904)

Doctoral Committee Cochair

Cherian, J. G., graduate. (2014).

Garcia, C. G., doctoral candidate.

Holleman, J. F., doctoral student.

Doctoral Committee Member

Ellis, M. C., doctoral student.

Supervision of Student Research Not Related to Thesis or Dissertation

Fennema, M. (Jun–Jul 2016).

Suen, D. (Jun–Jul 2016).

Jones, M. (Jun–Jul 2012).

Lamarche, C. (Jun–Jul 2011).

Brown, D. (Jun–Jul 2009).

Research and Original Creative Work

Publications

Invited Journal Articles

Noe, G. T., Kim, J. &., Lee, J., Jho, Y. &., Wang, Y., Wójcik, A. K., McGill, S. A., Reitze, D. H., Belyanin, A. A., & Kono, J. (2013). Generation of superfluorescent bursts from a fully tunable semiconductor magneto-plasma. *Fortschr Physik*, 61(2-3), 393-403.
doi:10.1002/prop.201200088

Refereed Journal Articles

- Ho, V., Dao, T., Jiang, H., Lin, J., Zavada, J., McGill, S., & Vinh, N. (2017). Photoluminescence quantum efficiency of Er optical centers in GaN epilayers. *Sci Reports*, 7, 39997. doi:10.1038/srep39997
- Holinsworth, B., Sims, H., Cherian, J., Mazumdar, D., Harms, N., Chapman, B., Gupta, A., McGill, S., & Musfeldt, J. (2017). Magnetic field tunability of spin-polarized excitations in a high-temperature magnet. *Phys Rev B*, 96(9), 094427-094431. doi:10.1103/PhysRevB.96.094427
- O'Neal, K., Patete, J., Chen, P., Nanavati, R., Holinsworth, B., Smith, J., Marques, C., Simonson, J., Aronson, M., McGill, S., Wong, S., & Musfeldt, J. (2017). Magnetochromic sensing and size-dependent collective excitations in iron oxide nanoparticles. *Phys Rev B*, 95(12), 125416-125421. doi:10.1103/PhysRevB.95.125416
- Paul, J., Stevens, C., Zhang, H., Dey, P., McGinty, D., McGill, S., Smith, R., Reno, J., Turkowski, V., Perakis, I., Hilton, D., & Karaiskaj, D. (2017). Coulomb-interaction induced coupling of Landau levels in intrinsic and modulation-doped quantum wells. *Phys Rev B*, 95(24), 245314-245321. doi:10.1103/PhysRevB.95.245314
- Curtis, J., Tokumoto, T., Hatke, A., Cherian, J., Reno, J., McGill, S., Karaiskaj, D., & Hilton, D. (2016). Cyclotron decay time of a two-dimensional electron gas from 0.4 to 100 K. *Phys Rev B*, 93(15), 155437. doi:10.1103/PhysRevB.93.155437
- Holleman, J., Bishop, M., Garcia, C., Winfred, J., Lee, S., Lee, H., Beekman, C., Manousakis, E., & McGill, S. (2016). Evidence for impact ionization in vanadium dioxide. *Phys Rev B*, 94(15), 155129. doi:10.1103/PhysRevB.94.155129
- Pradhan, N. R., Garcia, C., Holleman, J., Rhodes, D., Parker, C., Talapatra, S., Terrones, M., Balicas, L., & McGill, S. A. (2016). Photoconductivity of few-layered In_2WSe_6 phototransistors via multi-terminal measurements. *2D Materials*, 3(4), 041004. doi:10.1088/2053-1583/3/4/041004
- Yokosuk, M., al-Wahish, A., Artyukhin, S., O'Neal, K., Mazumdar, D., Chen, P., Yang, J., Oh, Y., McGill, S., Haule, K., Cheong, Sang-Wook, Vanderbilt, D., & Musfeldt, J. (2016). Magnetoelectric Coupling through the Spin Flop Transition in Ni_3TeO_6 . *Phys Rev Lett*, 117(14), 147402. doi:10.1103/PhysRevLett.117.147402
- Besara, T., Ramirez, D., Sun, J., Whalen, J. B., Tokumoto, T. D., McGill, S. A., Singh, D. J., & Siegrist, T. (2015). Ba_2TeO : A new layered oxytelluride. *J Solid State Chem*, 222, 60-65. doi:10.1016/j.jssc.2014.11.003
- Chen, P., Holinsworth, B., O'Neal, K., Brinzari, T., Mazumdar, D., Topping, C., Luo, X., Cheong, S.-W., Singleton, J., McGill, S., & Musfeldt, J. (2015). Magnetochromic effect

- in multiferroic $R\text{In}(1-x)\text{Mn}x\text{O}_3$ ($R = \text{Tb}, \text{Dy}$). *Phys Rev B*, *91*(20), 205130. doi:10.1103/PhysRevB.91.205130
- Cong, K., Wang, Y., Kim, Ji-Hee, Noe, G., McGill, S., Belyanin, A., & Kono, J. (2015). Superfluorescence from photoexcited semiconductor quantum wells: Magnetic field, temperature, and excitation power dependence. *Phys Rev B*, *91*(23), 235448. doi:10.1103/PhysRevB.91.235448
- Holinsworth, B., Mazumdar, D., Brooks, C., Mundy, J., Das, H., Cherian, J., McGill, S., Fennie, C., Schlom, D., & Musfeldt, J. (2015). Direct band gaps in multiferroic h-LuFeO₃. *Applied Physics Letters*, *106*(8), 082902. doi:10.1063/1.4908246
- Meeker, M., Magill, B., Khodaparast, G., Saha, D., Stanton, C., McGill, S., & Wessels, B. (2015). High-field magnetic circular dichroism in ferromagnetic InMnSb and InMnAs: Spin-orbit-split hole bands and g factors. *Phys. Rev. B*, *92*(12), 125203. doi:10.1103/PhysRevB.92.125203
- Pradhan, N., Ludwig, J., Lu, Z., Rhodes, D., Bishop, M., Thirunavukkuarasu, K., McGill, S., Smirnov, D., & Balicas, L. (2015). High Photoresponsivity and Short Photoresponse Times in Few-Layered WSe₂ Transistors. *Acs Appl Mater Interfaces*, *7*(22), 12080-12088. doi:10.1021/acsami.5b02264
- Rawat, N., Pan, Z., Lamarche, C., Wetherby, A., Waterman, R., Tokumoto, T., Cherian, J., Headrick, R., McGill, S., & Furis, M. (2015). Spin Exchange Interaction in Substituted Copper Phthalocyanine Crystalline Thin Films. *Scientific Reports*, *5*(1), 16536. doi:10.1038/srep16536
- Baldwin, T., McGill, S., & Wang, H. (2014). Exciton-correlated hole tunneling in mixed-type GaAs quantum wells. *Phys. Rev. B*, *90*(3), 035304. doi:10.1103/PhysRevB.90.035304
- Chen, P., Holinsworth, B., O'Neal, K., Brinzari, T., Mazumdar, D., Wang, Y., McGill, S., Cava, R., Lorenz, B., & Musfeldt, J. (2014). Magnetic-field-induced shift of the optical band gap in Ni₃V₂O₈. *Phys Rev B*, *89*(16), 165120. doi:10.1103/PhysRevB.89.165120
- Cherian, J., Tokumoto, T., Zhou, H., & McGill, S. (2014). Short-range magnetic interactions and optical band-edge physics in SrCu₂(BO₃)₂. *Phys Rev B*, *90*(1), 014405. doi:10.1103/PhysRevB.90.014405
- Curtis, J. A., Tokumoto, T., Nolan, N. K., McClintock, L. M., Cherian, J. G., McGill, S. A., & Hilton, D. J. (2014). Ultrafast pump-probe spectroscopy in gallium arsenide at 25 T. *Opt. Lett*, *39*(19), 5772 - 5775. doi:10.1364/OL.39.005772

- Green, T., Yi, C., Zeng, C., Jin, R., McGill, S., & Knappenberger, K. (2014). Temperature-Dependent Photoluminescence of Structurally-Precise Quantum-Confined Au₂₅(SC₈H₉)₁₈ and Au₃₈(SC₁₂H₂₅)₂₄ Metal Nanoparticles. *J Phys Chem*, *118*(45), 10611-10621. doi:10.1021/jp505913j
- Wood, R., Saha, D., McCarthy, L., Tokarski, J., Sanders, G., Kuhns, P., McGill, S., Reyes, A., Reno, J., Stanton, C., & Bowers, C. (2014). Effects of strain and quantum confinement in optically pumped nuclear magnetic resonance in GaAs: Interpretation guided by spin-dependent band structure calculations. *Phys Rev B*, *90*(15), 155317. doi:10.1103/PhysRevB.90.155317
- Blumling, D., McGill, S., & Knappenberger, K. (2013). The influence of applied magnetic fields on the optical properties of zero- and one-dimensional CdSe nanocrystals. *Nanoscale*, *5*(19), 9049-9056. doi:10.1039/C3NR03252C
- Cherian, J., Tokumoto, T., Zhou, H., Choi, E., & McGill, S. (2013). Electronic structure and magnetic symmetry in MnTiO₃ analyzed by second harmonic generation. *Phys Rev B*, *87*(21), 214411. doi:10.1103/PhysRevB.87.214411
- Günaydın-Şen, &., Chen, P., Fosso-Tande, J., Allen, T., Cherian, J., Tokumoto, T., Lahti, P., McGill, S., Harrison, R., & Musfeldt, J. (2013). Magnetoelectric coupling in 4,4'-stilbenedinitrene. *J Chem Phys*, *138*(20), 204716. doi:10.1063/1.4807053
- Kim, J.-H., Lee, J., Noe, G., Wang, Y., Wójcik, A., McGill, S., Reitze, D., Belyanin, A., & Kono, J. (2013). Renormalized energies of superfluorescent bursts from an electron-hole magnetoplasma with high gain in In_xGa_{1-x}As quantum wells. *Phys Rev B*, *87*(4), 045304. doi:10.1103/PhysRevB.87.045304
- Kim, Ji-Hee, II, G., McGill, S., Wang, Y., Wójcik, A., Belyanin, A., & Kono, J. (2013). Fermi-edge superfluorescence from a quantum-degenerate electron-hole gas. *Sci Reports*, *3*(1), 3283. doi:10.1038/srep03283
- Meeker, M., Magill, B., Merritt, T., Bhowmick, M., McCutcheon, K., Khodaparast, G., Tischler, J., McGill, S., Choi, S., & Palmstrøm, C. (2013). Dynamics of photoexcited carriers and spins in InAsP ternary alloys. *Appl Phys Lett*, *102*(22), 222102. doi:10.1063/1.4808346
- Whalen, J. B., Besara, T., Vasquez, R., Herrera, F., Sun, J., Ramirez, D., Stillwell, R. L., Tozer, S. W., Tokumoto, T. D., McGill, S. A., Allen, J., Davidson, M., & Siegrist, T. (2013). A new oxytelluride: Perovskite and CsCl intergrowth in Ba₃Yb₂O₅Te. *J Solid State Chem*, *203*, 204-211. doi:10.1016/j.jssc.2013.04.030
- Bhowmick, M., Merritt, T., Khodaparast, G., Wessels, B., McGill, S., Saha, D., Pan, X., Sanders, G., & Stanton, C. (2012). Time-resolved differential transmission in MOVPE-grown ferromagnetic InMnAs. *Phys Rev B*, *85*(12), 125313. doi:10.1103/PhysRevB.85.125313

- Blumling, D., Tokumoto, T., McGill, S., & Knappenberger, K. (2012). Temperature- and field-dependent energy transfer in CdSe nanocrystal aggregates studied by magnetophotoluminescence spectroscopy. *Phys Chem Chem Phys*, *14*(31), 11053-11059. doi:10.1039/C2CP41586K
- Challa, P., Curtiss, O., Williams, J., Twieg, R., Toth, J., McGill, S., Jákli, A., Gleeson, J., & Sprunt, S. (2012). Light scattering from liquid crystal director fluctuations in steady magnetic fields up to 25 tesla. *Phys Rev E*, *86*(1), 011708. doi:10.1103/PhysRevE.86.011708
- Chen, P., Günaydın-Şen, &., Ren, W., Qin, Z., Brinzari, T., McGill, S., Cheong, S., & Musfeldt, J. (2012). Spin cycloid quenching in Nd³⁺-substituted BiFeO₃. *Phys Rev B*, *86*(1), 014407. doi:10.1103/PhysRevB.86.014407
- Chen, P., Lee, N., McGill, S., Cheong, S., & Musfeldt, J. (2012). Magnetic-field-induced color change in α -Fe₂O₃ single crystals. *Phys Rev B*, *85*(17), 174413. doi:10.1103/PhysRevB.85.174413
- II, G., Kim, Ji-Hee, Lee, J., Wang, Y., Wójcik, A., McGill, S., Reitze, D., Belyanin, A., & Kono, J. (2012). Giant superfluorescent bursts from a semiconductor magneto-plasma. *Nat Phys*, *8*(3), nphys2207. doi:10.1038/nphys2207

Presentations

Invited Presentations at Conferences

- McGill, S. (presented 2017, October). *Ultrafast Optics in High Magnetic Fields*. Presentation at EMN Ultrafast Conference, Energy, Materials, Nanotechnology, Orlando, FL. (International)

Nonrefereed Presentations at Conferences

- Barman, B., O'Beirne, A. L., Linn, A. G., Curtis, J. A., Holleman, J., Garcia, C., Tokumoto, T., Reno, J. L., McGill, S., Karaiskaj, D., & Hilton, D. J. (presented 2017, March). *A Comparative Study of Cyclotron Decay in Two-dimensional Electron Gas Samples*. Presentation at APS March Meeting, American Physical Society, New Orleans, LA. (International)
- Burch, A., Curtis, J., Linn, A., Barman, B., Stiles, M., Reno, J., McGill, S., Karaiskaj, D., & Hilton, D. (presented 2017, March). *THz Time-Domain Magneto-spectroscopy of GaAs 2DEG in the 25 T Split-Florida Helix*. Presentation at APS March Meeting, American Physical Society, New Orleans, LA. (International)

- Holinsworth, B., Sims, H., Cherian, J., Mazumdar, D., Harms, N., Chapman, B., Gupta, A., McGill, S., & Musfeldt, J. (presented 2017, March). *Magnetic field tunability of spin polarized excitations in a high temperature magnet*. Presentation at APS March meeting, American Physical Society, New Orleans, LA. (International)
- Linn, A., Barman, B., McGill, S., Karaiskaj, D., Reno, J., & Hilton, D. (presented 2017, March). *High Peak Field THz Pump-THz Probe Spectroscopy in Two Dimensional Electron Gas Systems*. Presentation at APS March Meeting, American Physical Society, New Orleans, LA. (International)
- O'Neal, K., Patete, J., Chen, P., Holinsworth, B., Smith, J., Marques, C., Simonson, J., Aronson, M., McGill, S., Wong, S., & Musfeldt, J. (presented 2017, March). *Magnetochromic Sensing in Iron Oxide Nanoparticles*. Presentation at APS March Meeting, American Physical Society, New Orleans, LA. (International)
- Pradhan, N., Garcia, C., Isenberg, B., Rhodes, D., Memaran, S., Holleman, J., McGill, S., & Balicas, L. (presented 2017, March). *Electrical and Photoconductivity study on few layers ReSe₂*. Presentation at APS March Meeting, American Physical Society, New Orleans, LA. (International)
- Rupnik, K., Cooper, B., Dunne, T., Gerosa, K., Mercer, K., & McGill, S. (presented 2017, March). *Femtosecond Polarization Phase Selective (PPS) High Magnetic Field Studies of Electron-Spin-Hole (ESH) Dynamics: New Tools for Ultrafast Imaging Fe-centered ESH Transfer Mechanisms Steps*. Presentation at APS March Meeting, American Physical Society, New Orleans, LA. (International)
- Yokosuk, M., al-Wahish, A., Artyukhin, S., O'Neal, K., Mazumdar, D., Chen, P., Yang, J., McGill, S., Haule, K., Cheong, S., Vanderbilt, D., & Musfeldt, J. (presented 2017, March). *Magnetoelectric Coupling through the Spin Flop Transition in Ni₃TeO₆*. Presentation at APS March Meeting, American Physical Society, New Orleans, LA. (International)
- Zhang, C., Sun, D., McLaughlin, R., McGill, S., Semenov, D., Ehrenfreund, E., & Vardeny, Z. V. (presented 2017, March). *Studies of magnetically induced circular polarization phosphorescence in Pt-rich pi-conjugated polymers at high fields*. Presentation at APS March Meeting, American Physical Society, New Orleans, LA. (International)

Invited Workshops

- McGill, S. (2017, October). *Ultrafast Optical Spectroscopy in the 25 T Split Florida-Helix*. Workshop delivered at NHMFL User Committee Workshop, University of Florida, Gainesville. (National)

Master Classes

McGill, S. (2017, May). *Ultrafast Optics In High Magnetic Fields*. Master class delivered at NHMFL User Summer School, Tallahassee, FL. (International)

McGill, S. (2016, May). *Ultrafast Optics In High Magnetic Fields*. Master class delivered at NHMFL User Summer School, Tallahassee, FL. (International)

McGill, S. (2015, May). *Ultrafast Optics In High Magnetic Fields*. Master class delivered at NHMFL User Summer School, Tallahassee, FL. (International)

Contracts and Grants

Contracts and Grants Funded

Van Sciver, Steven W (Co-PI), Cao, Jianming (Co-PI), McGill, Stephen Adrian (Co-PI), & Guo, Wei (PI). (May 2013–May 2014). *EIEG: Generation III Intensified CCD Camera for Time-Resolved Imaging and Spectroscopy Applications*. Funded by FSU EIEG Award. Total award \$43,000.

Van Sciver, Steven W (Co-PI), Cao, Jianming (Co-PI), McGill, Stephen Adrian (Co-PI), & Guo, Wei (PI). (May 2013–May 2014). *EIEG: Generation III Intensified CCD Camera for Time-Resolved Imaging and Spectroscopy Applications*. Funded by FSU EIEG Award. Total award \$43,000.

McGill, Stephen Adrian (PI). (Sep 2012–Aug 2016). *MRI: Development of a Free-Space Ultrafast Spectroscopy System for Chemistry, Materials Science, and Biophysics Research And Education In The 25-T Split-Coil Helix*. Funded by National Science Foundation. (1229217). Total award \$906,650.

Dalal, Nar S (Co-PI), Chiorescu, Irinel (Co-PI), McGill, Stephen Adrian (PI), Englander, Ongi (Co-PI), & Warusawithana, Maitri (Co-PI). (Dec 2010–Nov 2011). *EIEG: High-Brightness, Multi-Line Light Source for Spectroscopy and Machining*. Funded by FSU EIEG Award. Total award \$34,250.

Dalal, Nar S (Co-PI), Chiorescu, Irinel (Co-PI), McGill, Stephen Adrian (PI), Englander, Ongi (Co-PI), & Warusawithana, Maitri (Co-PI). (Dec 2010–Nov 2011). *EIEG: High-Brightness, Multi-Line Light Source for Spectroscopy and Machining*. Funded by FSU EIEG Award. Total award \$34,250.

Contracts and Grants Pending

Manousakis, Efstratios (PI), McGill, Stephen Adrian (Co-PI), & Beekman, Christianne (Co-PI). (Jan 2017). *DMREF: Designing Heterostructures Of Strongly-Correlated Oxides For Electronics And Photovoltaics*. Submitted to National Science Foundation.

Postdoctoral Supervision

Bishop, M. (2014–15).

Tokumoto, T. (2010–12).

Service

Florida State University

FSU Department Service

Chairman, Laser Safety Subcommittee (2012–present).

Member, Crow Fellowship Selection Committee (2016–2017).

Member, NHMFL Promotion Committee (2014).

Member, Laser Safety Subcommittee (2011–2012).

Chairman, Laser Safety Subcommittee (2008–2011).

The Profession

Guest Reviewer for Refereed Journals

Nature: Materials (Jul 2014–present).

Physical Review Letters (Jun 2012–present).

Physical Review B (May 2010–present).

Exhibitions Curated

Vortex Generator. Open House: National High Magnetic Field Laboratory (2010–present).

Reviewer or Panelist for Grant Applications

National Science Foundation, Division of Materials Research (2017–present).

National High Magnetic Field Laboratory (2013–2015).