**Wei Han**

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**Professional Experiences**

* **Assistant Professor** 2014.10 -- Present

International Center for Quantum Materials

Peking University, Beijing, China

Principle investigator: *Lab for Spintronics and Emergent Materials*

* **Postdoctoral Fellow** 2012.02 – 2014.10

IBM Almaden Research Center, San Jose, CA, USA

**Education**

* **Ph. D., Physics** 2006.09 – 2012.01

University of California, Riverside, Riverside, CA, USA

Dissertation: “*Spin Transport and Relaxation in Graphene and Germanium*”

* **B. S., Materials Physics** 2002.09 – 2006.07

University of Science and Technology of China, China

**Research Interests**

* Spintronics in low dimensional quantum materials
* Novel materials and interface states
* Molecular beam epitaxy
* Nano electronics

**Awards and Honors**

* APS GMAG student dissertation award, American Physics Society, 2012
* Robert T. Poe Memorial Graduate Scholarship Award, UCR, 2012
* Chinese Government Award for Outstanding Students Abroad, Chinese government, 2012
* Chancellor’s & college dissertation fellowship UCR, 2011
* Leo Falicov student award, American Vacuum Society 56th national meeting, 2009
* Benjamin C. Shen memorial graduate scholarship award, UCR, 2009
* Dean’s distinguished fellowship, UCR, 2006-2008
* Outstanding student scholarship, USTC, 2004, 2005
* Zhang Zongzhi Sci-Tec scholarship, USTC, 2003

**Professional Activities**

* Member, American Physical Society (2008-present)
* Manuscript referee, *Physics Review Letters*, *Reports on Progress in Physics, Nano Lett, Journal of American Chemical Society, Physics Review B, Applied Physics Letters, Journal of Magnetism and Magnetic Materials, Nanotechnology, et al.*

**Journal Publications**

[31] Wei Han, R. K. Kawakami, Martin Gmitra, and Jaroslav Fabian,“Graphene spintronics”, **Nat. Nanotech**. 9, 794-807 (2014).

[30] Wei Han, Xin Jiang, Adam Kajdos, See-Hun Yang, Susanne Stemmer, Stuart S. P. Parkin, “Spin injection and detection in lanthanum- and niobium-doped SrTiO3 using the Hanle technique”, **Nat. Commun.** 4:2134 (2013).

[29] Dali Sun, Tek Basel, Bhoj Gautam, Wei Han, Xin Jiang, Stuart S. P. Parkin, and Z. Valy Vardeny, “Giant magneto-electroluminescence from hybrid spin-organic spin organic light emitting diodes”, **Spin** 04, 1450002 (2014).

[28] Adrian G Swartz, Kathleen M McCreary, Wei Han, Hua Wen, Roland K Kawakami, "A systematic approach to interpreting Hanle spin precession data in non-local spin valves", **Proc. SPIE** Vol. 8813, 881328, (2013).

[27] Dali Sun, Tek Basel, Bhoj Gautam, Wei Han, Xin Jiang, Stuart S. P. Parkin, and Z. Valy Vardeny, “Room-temperature magnetically modulated electroluminescence from hybrid organic/inorganic spintronics devices”, **Appl. Phys. Lett.** 103, 042411 (2013).

[26] Mingyang Li, Wei Han, Xin Jiang, Jaewoo Jeong, Mahesh Samant, Stuart S.P. Parkin, “Suppression of ionic liquid gate induced metallization of SrTiO3(001) by oxygen”, **Nano. Lett.** 13, pp 4675–4678 (2013).

[25] Adrian G Swartz, Kathleen M McCreary, Wei Han, Jared J I Wong, Patrick M Odenthal, Hua Wen, Jen-Ru Chen, Roland K Kawakami, Yufeng Hao, Rodney S Ruoff, Jaroslav Fabian, “Integrating MBE materials with graphene to induce novel spin-based phenomena”, **J. Vac. Sci. Technol. B** 31, 04D105 (2013).

[24] Adrian G Swartz, Jen-Ru Chen, Kathleen M McCreary, Patrick M Odenthal, Wei Han, and Roland K Kawakami, “Effect of in situ deposition of Mg adatoms on spin relaxation in graphene”, **Phys. Rev. B** 87, 075455 (2013).

[23] Li-Te Chang, Wei Han, Yi Zhou, Jianshi Tang, Michael Oehme, Inga A. Fischer, Joerg Schulze, Roland K. Kawakami, and Kang L. Wang, “Comparison of Spin Lifetimes in n-Ge Characterized between Three-Terminal and Four-Terminal Nonlocal Hanle Measurements”, **Semiconductor Science and Technology** 28, 015018 (2013).

[22] K. M. McCreary, Adrian G. Swartz, Wei Han, Jaroslav Fabian, Roland K. Kawakami, “Magnetic Moment Formation in Graphene Detected by Scattering of Pure Spin Currents”, Phys. Rev. Lett. 109, 186604 (2012).

[21] Jared J. I. Wong, Adrian G. Swartz, Renjing Zheng, Wei Han, Roland K. Kawakami, “Electric Field Control of the Verwey Transition and Induced Magnetoelectric Effect in Magnetite”, **Phys. Rev. B** 86, 060409(R) (2012).

[20] Wei Han, Jen-Ru Chen, Deqi Wang, Kathleen M. McCreary, Hua Wen, Adrian G. Swartz, Jing Shi, Roland K. Kawakami, “Spin Relaxation in Single Layer Graphene with Tunable Mobility”, **Nano Lett** 12, pp 3443–3447 (2012).

[19] Wei Han, K. M. McCreary, K. Pi, W. H. Wang, Yan Li, H. Wen, J. R. Chen, R. K. Kawakami, “Spin Transport and Relaxation in Graphene”, **J. Magn. Magn. Mater.** 324, 369 (2012).

[18] Wei Han, J. R. Chen, K. M. McCreary, H. Wen, R. K. Kawakami, “Enhanced spin injection efficiency and extended spin lifetimes in graphene spin valves”, **Proc. SPIE** Vol. 8100, 81000Q, (2011).

[17] Yi Zhou\*, Wei Han**\***, Li-Te Chang, Faxian Xiu,Michael Oehme, Joerg Schulze, Roland. K. Kawakami, and Kang L. Wang, “Electrical spin injection and transport in Germanium”, **Phys. Rev. B** 84, 125323 (2011).

[16] Wei Han, Roland Kawakami, “Spin Relaxation in Single Layer and Bilayer Graphene”, **Phys. Rev. Lett.**107, 047207 (2011).

[15] Wei Han, K. Pi, K. M. McCreary, Yan Li, Jared J. I. Wong, A. G. Swartz, and R. K. Kawakami, "Tunneling Spin Injection into Single Layer Graphene ", **Phys. Rev. Lett.** 105, 167202 (2010).

[14] Yan Li, Wei Han, A. G. Swartz, K. Pi, J. J. I. Wong, S. Mack, D. D. Awschalom, and R. K. Kawakami, “ Oscillatory spin polarization and magneto-optical Kerr effect in Fe3O4 thin films on GaAs(001)”, **Phys. Rev. Lett.** 105, 167203 (2010).

[13] A. G. Swartz, J. Ciraldo, J. J. I. Wong, Yan Li, Wei Han, Tao Lin, S. Mack, J. Shi, D. D. Awschalom, and R. K. Kawakami, “Epitaxial EuO thin films on GaAs”, **Appl. Phys. Lett.** 97, 112509 (2010).

[12] K. Pi, Wei Han, K. M. McCreary, A. G. Swartz, Yan Li, and R. K. Kawakami, "Manipulation of Spin Transport in Graphene by Surface Chemical Doping",  **Phys. Rev. Lett.** 104, 187201 (2010).

[11] Faxian Xiu, Yong Wang, Jiyoung Kim, Pramey Upadhyaya, Yi Zhou, Xufeng Kou, Wei Han, R. K. Kawakami, Jin Zou and Kang L. Wang, “Room-Temperature Electric-Field Controlled Ferromagnetism in Mn0.05Ge0.95 Quantum Dots”, **ACS Nano,**  4 (8), pp 4948–4954 (2010).

[10] K. M. McCreary, K. Pi, A. G. Swartz, Wei Han, W. Bao, C. N. Lau, F. Guinea, M. I. Katsnelson, and R. K. Kawakami, "Effect of cluster formation on graphene mobility", **Phys. Rev. B** 81, 115453 (2010).

[9] Jared J. I. Wong, Luciana Ramirez, A. G. Swartz, A. Hoff, Wei Han, Yan Li, and R. K. Kawakami, "Tailoring interlayer exchange coupling of ferromagnetic films across MgO with Fe nanoclusters", **Phys. Rev. B** 81, 094406 (2010).

[8] Yi Zhou\*, Wei Han\*, Yong Wang, Faxian Xiu, Jin Zou, R.K. Kawakami, Kang L. Wang, “Investigating the origin of Fermi level pinning in Ge Schottky junctions using epitaxially grown ultrathin MgO films”, **Appl. Phys. Lett.** 96, 102103 (2010).

[7] Wei Han**\***, Yi Zhou\*, Yong Wang, Yan Li, Jared. J. I. Wong, K. Pi, A.G. Swartz, K.M. McCreary, Faxian Xiu, Kang L. Wang, Jin Zou, and R.K. Kawakami, "Growth of single-crystalline, atomically smooth MgO ﬁlms on Ge(001) by molecular beam epitaxy", **J. Crystal Growth**, 312, 44 (2010).

[6] Wei Han, K. Pi, W. H. Wang, K. M. McCreary, Yan Li, W. Bao, P. Wei, J. Shi, C. N. Lau, and R. K. Kawakami, "Spin transport in graphite and graphene spin valves", **Proc. SPIE**, Vol. 7398, 739819 (2009).

[5] K. Pi, K. M. McCreary, W. Bao, Wei Han, Y. F. Chiang, Yan Li, S.-W. Tsai, C. N. Lau, and R. K. Kawakami, "Electronic doping and scattering by transition metals on graphene," **Phys. Rev. B** 80, 075406 (2009).

[4] Yi Zhou, Masaaki Ogawa, Mingqiang Bao, Wei Han, Roland K. Kawakami, and Kang L. Wang, "Engineering of tunnel junctions for prospective spin injection in germanium," **Appl. Phys. Lett.** 94, 242104 (2009).

[3] Wei Han, K. Pi, W. Bao, K. M. McCreary, Yan Li, W. H. Wang, C. N. Lau, and R. K. Kawakami, "Electrical detection of spin precession in single layer graphene spin valves with transparent contacts", **Appl. Phys. Lett.** 94, 222109 (2009).

[2] Wei Han, W. H. Wang, K. Pi, K. M. McCreary, W. Bao, Yan Li, F. Miao, C. N. Lau, and R. K. Kawakami, "Electron-Hole Asymmetry of Spin Injection and Transport in Single-Layer Graphene", **Phys. Rev. Lett.** 102, 137205 (2009).

[1] W. H. Wang\*, Wei Han**\***, K. Pi, K. M. McCreary, F. Miao, W. Bao, C. N. Lau, and R. K. Kawakami, “Growth of atomically smooth MgO films on graphene by molecular beam epitaxy”, **Appl. Phys. Lett.** 93, 183107 (2008).

\* Equal contribution.

**Patents**

[1] **Wei Han**, Yi Zhou, Kang-Lung Wang, Roland K. Kawakami “Epitaxial growth of single crystalline MgO on Germanium,” US20110089415.

**Invited Conference Talks and Seminars**

[5] “Spin injection and detection in La and Nb doped SrTiO3”, 4th ICQs Conference, Beijing, P. R. China (June 2014).

[4] “Spin Injection and Detection in La- and Nb-Doped Strontium Titanate”, 41st Conference on the Physics and Chemistry of Surfaces and Interfaces, Santa Fe, NM, USA (Jan 2014).

[3] “Spin injection and detection in lanthanum- and niobium-doped SrTiO3", Physical Sciences Symposia-2013, Boston, USA (Sept 2013).

[2] “Spin Injection and Relaxation in Graphene,” APS March Meeting, Boston, MA, Feb. 25-Mar. 2, 2012.

[1] “Spin Injection and Relaxation in Graphene,” SPIE (Spintronics IV), San Diego, CA, Aug. 21-25, 2011.

**Invited Seminars**

[8] “Graphene spintronics”, Seminar, School of Physics and Technology, Wuhan University, Wuhan, Hubei, P. R. China (June 2014).

[7] “Spintronics in Graphene and Complex Oxides”, Seminar, Department of Physics, Carnegie Mellon University, PA, USA (Feb. 2014).

[6] “Spintronics in Graphene and Complex Oxides”, Seminar, Department of Physics, Washington State University, WA, USA (Feb. 2014).

[5] “Spintronics in Graphene and Complex Oxides”, Seminar, International Center for Quantum Materials, Peking University, Beijing, P. R. China (Dec. 2013).

[4] “Spin Transport in Graphene and Germanium”, IBM Almaden research center, San Jose, CA, USA (Oct. 2011).

[3] “Spin Transport and Relaxation in Graphene”, Seminar, Cornell University, Ithaca, NY, USA (Sept. 2011).

[2] “Spin Transport in Graphene and Germanium”, Seminar, Department of Physics, Penn State University, PA, USA (July 2011).

[1] “Spin Injection and Relaxation in Graphene”, Seminar, Device Research Laboratory, University of California, Los Angeles, CA, USA (Apr. 2011).

**Conference Section Chairs**

[2] Section Chair: “Session D40: Invited Session: Graphene Spintronics and Magnetism”. March Meeting of the American Physical Society, Denver, CO, USA (Mar. 2014)

[1] Section Chair: “Graphene Analogs and Novel 2D Materials II”, 41st Conference on the Physics and Chemistry of Surfaces and Interfaces, Santa Fe, NM, USA (Jan. 2014).