SEE-HUN YANG, Ph.D.

Curriculum Vitae

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EDUCATION

SEOUL NATIONAL UNIVERSITY, SEOUL, REPUBLIC OF KOREA

Ph.D. in Physics, 1998, Area of Specialization: Experimental Condensed Matter Physics

M.S. in Physics, 1994, Area of Specialization: Experimental Condensed Matter Physics

B.S. in Physics, (Graduated Cum Laude), 1990

POST-DOCTORAL AND PROFESSIONAL EXPERIENCE

IBM Almaden Research Center, IBM Research, IBM, Research Staff Member, 2011–present

IBM Almaden Research Center, IBM Research, IBM, Research Scientist, 2001–2011

Lawrence Berkeley National Laboratory

Postdoctoral Researcher in Materials Sciences Division & Advanced Light Source, 1998–2001

AWARDS AND HONORS

IBM Research Division Award for Giant Tunneling Magnetoresistance in MgO-based Tunnel Junctions, 2007

Fellowship of Korean Science and Engineering Foundation, 1998

PATENTS

3. R. Allenspach, A. J. Annunziata, D. C. Worledge, **See-Hun Yang**, "Spin transfer torque magnetic tunnel junction with off-centered current flow", *US Patent 9853205* (2017).

2. Stuart S. P. Parkin, Luc Thomas**,** **See-Hun Yang**, "Domain wall motion in perpendicularly magnetized wires having magnetic multilayers with engineered interfaces", *US Patent 8638601* (2014).

1. Stuart S. P. Parkin, Luc Thomas, **See-Hun Yang**, "Domain wall motion in perpendicularly magnetized wires having artificial antiferromagnetically coupled multilayers with engineered interfaces", *US Patent 8687415* (2014).

FULL PUBLICATION LIST AND OTHER INFORMATION (H-INDEX AND I10-INDEX)

URL: https://scholar.google.com/citations?user=Y9gRQUwAAAAJ&hl=en

SELECTED PUBLICATIONS

19. Chirag Garg, Aakash Pushp, **See-Hun Yang**, Timothy Phung, Brian P. Hughes, Charles Rettner, Stuart Parkin, "Highly Asymmetric Chiral Domain-Wall Velocities in Y-shape Junctions", *Nano Letters* 18, 1826 (2018).

18. **See-Hun Yang**, Stuart Parkin, "Novel domain wall dynamics in synthetic antiferromagnets", *Journal of Physics: Condensed Matter* 29, 303001 (2017).

17. Chirag Garg, **See-Hun Yang**, Timothy Phung, and Stuart S. P. Parkin, "Dramatic influence of curvature of nanowire on chiral domain wall velocity", *Science Advances* 3, e1602804 (2017).

16. Oren Ben Dor, Shira Yochelis, Anna Radko, Kiran Vankayala, Eyal Capua, Amir Capua, **See-Hun Yang**, Lech Tomasz Baczewski, Stuart Stephen Papworth Parkin, Ron Naaman, Yossi Paltiel, "Magnetization switching in ferromagnets by adsorbed chiral molecules without current or external magnetic field", *Nature Communications* 8, 14567 (2017).

15. Kai-Uwe Demasius, Timothy Phung, Weifeng Zhang, Brian P. Hughes, **See-Hun Yang**, Andrew Kellock, Wei Han, Aakash Phushp, and Stuart S. P. Parkin, "Enhanced spin-orbit torques by oxygen incorporation in tungsten films", *Nature Communications* 7, 10644 (2016).

14. Weifeng Zhang, Wei Han, **See-Hun Yang**, Yan Sun, Yang Zhang, Binghai Yan, and Stuart S. P. Parkin, "Giant facet-dependent spin-orbit torque and spin Hall conductivity in the triangular antiferromagnet $IrMn_3$", *Science Advances* 2, e1600759 (2016).

13. Weifeng Zhang, Wei Han, Xin Jiang, **See-Hun Yang**, and Stuart S. P. Parkin, "Role of transparency of platinum-ferromagnet interfaces in determining the intrinsic magnitude of the spin Hall effect", *Nature Physics* 11, 496 (2015).

12. Stuart S. P. Parkin and **See-Hun Yang**, "Memory on the racetrack", *Nature Nanotechnology* 10, 195 (2015).

11. **See-Hun Yang**, Kwang-Su Ryu, and Stuart S. P. Parkin, "Domain-wall velocities of up to 750 m/s driven by exchange-coupling torque in synthetic antiferromagnets", *Nature Nanotechnology* 10, 221 (2015).

10. Timothy Phung, Aakash Pushp, Luc Thomas, Charles Rettner, **See-Hun Yang**, Kwang-Su Ryu, John Baglin, Brian Hughes, and Stuart S. P. Parkin, "Highly Efficient In-Line Magnetic Domain Wall Injector", *Nano Letters* 15, 835 (2015).

9. Kwang-su Ryu, **See-Hun Yang**, Luc Thomas, and Stuart S. P. Parkin, "Chiral spin torque arising from proximity-induced magnetization" *Nature Communications* 5, 3910 (2014).

8. Kwang-su Ryu, Luc Thomas, **See-Hun Yang**, and Stuart S. P. Parkin, "Chiral spin torque at magnetic domain walls", *Nature Nanotechnology* 8, 527 (2013).

7. Kwang-su Ryu, Luc Thomas, **See-Hun Yang**, S.S.P. Parkin, "Current Induced Tilting Domain Walls in High Velocity Motion along Perpendicularly Magnetized Micron-Sized Co/Ni/Co Racetracks", *Applied Physics Express* 5, 093006 (2012).

6. Luc Thomas, **See-Hun Yang**, Kwang-Su Ryu, Brian Hughes, Charles Rettner, Ding-Shuo Wang, Ching-Hsiang Tsai, Kuei-Hung Shen, and Stuart S. P. Parkin, "Racetrack Memory: a high-performance, low-cost, non-volatile memory based on magnetic domain walls", *Proceedings of IEDM* 24.22.21 (2011).

5. Hyunsoo Yang, **See-Hun Yang**, Saburo Takahashi, Sadamichi Maekawa, and Stuart Parkin, "Extremely long quasi-particle spin-lifetime in superconducting aluminum using MgO tunnel spin injectors.", *Nature Materials* 9, 586 (2010).

4. Hyunsoo Yang, **See-Hun Yang**, and Stuart S. P. Parkin, "Crossover from Kondo assisted suppression to co-tunneling enhancement of tunneling magnetoresistance via ferromagnetic nanodots in MgO tunneling barriers", *Nano Letters* 8, 340 (2008).

3. Stuart S. P. Parkin, C. Kaiser, A. Panchula, P. Rice, B. Hughes, M. Samant, and **See-Hun Yang**, "Giant tunneling magnetoresistance in crystalline barrier based MTJs", *Nature Materials* 3, 862 (2004).

2. **S.-H. Yang**, B. S. Mun, N. Mannella, S.-K. Kim, J. B. Kortright, J. H. Underwood, F. Salmassi, E. Arenholz, A. Young, Z. Hussain, M. A. Van Hove, and C. S. Fadley. "Non-destructive probing of a buried Fe/Cr interface by magnetic circular dichroism in core photoelectron emission." *J. Phys: Condens. Matter* 14, L1-L14 (2002).

1. **S.-H. Yang**, B. S. Mun, A. W. Kay, S.-K. Kim, J. B. Kortright, J. H. Underwood, Z. Hussain, and C. S. Fadley. "Depth-resolved photoemission spectroscopy from surface and buried layers with soft x-ray standing waves." *Surface Science Letter* 461, L557 (2000).

INVITED PRESENTATIONS AND TALKS

12. **See-Hun Yang**, "Chiral Spintronics", *ICMFS2018, invited Talk, UCSC, Santa Cruz, CA* (2018).

11. **See-Hun Yang**, "Chiral Spintronics", *IcAUMS2018, invited Talk, Jeju, Republic of Korea* (2018).

10. **See-Hun Yang**, "Chiral Spintronics", *Tranformational Matters and Devices, invited Talk, Ringberg Castle, MPI, Germany* (2018).

9. **See-Hun Yang**, and Stuart S. P. Parkin, "Spin-Orbitronics for Advanced Magnetic Memories", *ICMAT2017, invited Talk, Singapore* (2017).

8. **See-Hun Yang**, "Emergent domain wall dynamics in various magnetic nanostructures", *PIERS 2017 – THz Spintronics with Ferrimagnets and Dirac/Weyl Materials, Invited Talk, Singapore (2017).*

7. **See-Hun Yang**, "Emergent torques in magnetic nanostructures", *Gordon Research Conference 2017 – Spin Dynamics in Nanostructures, Invited Talk, Les Diablerets, Switzerland. (2017).*

6. **See-Hun Yang**, "Spin-orbit torque and beyond", *Korean Magnetic Society Fall Conference 2016, Invited Talk, Jeju, Republic of Korea. (2016).*

5. **See-Hun Yang**, "Novel Chiral Spin Torque and Exchange Coupling Torque driven Magnetic Domain Wall Dynamics in Magnetic Nanostructures", *Invited talk, BIT's 2nd Annual World Congress of Smart Materials, Singapore*, (2016).

4. **See-Hun Yang**, "Novel Current driven Domain Wall dynamics in Synthetic Antiferromagnets", *APS March Meeting 2016, Invited Talk, Baltimore, MD. (2016).*

3. **See-Hun Yang**, and Stuart S. P. Parkin, "Highly efficient domain wall motion in synthetic antiferromagnet racetracks", *Materials Science and Technology 2014, Invited Talk, Pittsburgh, PA. (2014).*

2. **See-Hun Yang**, and Stuart S. P. Parkin, "Chiral Spin Torque at Magnetic Domain Walls", *DoD ACS Productivity Workshop, Invited Talk, Baltimore, MD. (2014).*

1. **See-Hun Yang**, and Stuart S. P. Parkin, "Chiral Spin Torque in Magnetic Domain Walls", SPIE keynote talk in San Diego, CA (2013).

SESSION CHAIRING

3. **See-Hun Yang**, Spintransport Phenomena II session, APS March Meeting *2016, Baltimore, MD, (2016).*

2. **See-Hun Yang**, Spin-orbit torque Workshop *2013, KAUST, Saudi Arabia, (2013).*

1. **See-Hun Yang**, Focus Session: Spin-dependent Tunneling and High Magnetoresistance Devices, APS March Meeting *2013, APS March Meeting 2013, Baltimore, MD, (2013).*

REFEREEING AND REVIEWING JOURNAL PAPERS

Refereeing more than 50 papers requested by journals such as Nature Nanotechnology, Nature Materials, Nature Communications, Applied Physics Letters, and Journal of Magnetism and Magnetic Materials, New Journal of Physics, Scientific Reports, Journal of Physics: Condensed Matter Physics, 2D Materials, etc.