Olle Heinonen

Education

Institute of Technology, Uppsala University, M.Sc., Engineering Physics 1982.
Case Western Reserve University, M.S., Physics, 1985.
Case Western Reserve University, Ph.D., Physics, 1985.

Appointments

2014 – present, Fellow, Computation Institute, University of Chicago
2013 – present Fellow, Northwestern-Argonne Institute of Science and Engineering
2010 – present Material Scientist, Argonne National Laboratory
2010 – present Adjunct Professor of Physics, Northwestern University
1998 – 2010 Engineer/Manager at Seagate Technology
1993 – 1998 Associate Professor of Physics (with tenure), University of Central Florida
1989 – 1993 Assistant Professor of Physics, University of Central Florida
1987 – 1989 Post-doctoral research associate, Case Western Reserve University
1985 – 1987 Post-doctoral research associate, University of California, Santa Barbara

Honors

Fellow, American Physical Society

Ten Refereed Publications (out of > 80)

1. Direct observation of unconventional topological spin structure in coupled magnetic discs, C. Phatak, A.K. Petford-Long, and O. Heinonen, Phys. Rev. Lett. **108**, 067205 (2012).
2. Decoherence and mode-hopping in a magnetic tunnel junction based spin torque oscillator, P.K. Muduli, O. Heinonen, and J. Åkerman, Phys. Rev. Lett. **108**, 207203 (2012).
3. Spectral analysis of topological defects in an artificial spin-ice lattice, S. Gliga, A. Kakay, R. Hertel, and O.G. Heinonen, Phys. Rev. Lett. **110**, 117205 (2013) (Editor's Suggestion and Viewpoint in Physics selection)
4. Strongly localized magnetization modes in Permalloy antidot lattices, J. Sklenar, V.S. Bhatt, L. E. de Long, O. Heinonen and J.B. Ketterson, Appl. Phys. Lett. **102**, 152412 (2013).
5. Spin wave mode coexistence: A consequence of the Oersted field induced asymmetric energy landscape, R. K. Dumas, E. Iacocca, S. Bonetti, S.R. Sani, S.M. Mohseni, A. Eklund, J. Persson, O. Heinonen, and J. Åkerman, Phys. Rev. Lett. **110**, 257202 (2013).
6. Perpendicular spin torque in magnetic tunnel junctions, O. Heinonen, S. Stokes, and J.-Y. Yi, Phys. Rev. Lett. **105**, 066602 (2010).
7. Nanoscale structure of the magnetic induction at monopole defects in artificial spin-ice lattices, C. Phatak, A.K. Petford-Long, O. Heinonen, M. Pan, and M. de Graef, Phys. Rev. B **83**, 174421 (2011)
8. Giant magnetic anisotropy in tetragonal FeCo alloys, T. Burkert, L. Nordstrom, O. Eriksson, and O. Heinonen, Phys. Rev. Lett. **93**, 0272203 (2004).
9. Atomic and electronic structure of the CoFeB/MgO interface from first principles, J.D. Burton, S.S. Jaswal, E.Y. Tsymbal, O.N. Mryasov, and O.G. Heinonen,

Appl. Phys. Lett. **89**, 142507 (2006).

10. Vortex jump behavior in coupled magnetic heterostructures, S. Zhang, A.K. Petford-Long, O. Heinonen, and C. Phatak, Appl. Phys. Lett. http://scitation.aip.org/content/aip/journal/apl/105/21/10.1063/1.4902922 DOI: 10.1063/1.4902922

Books

1. Many-Particle Theory, E.K.U. Gross. E. Runge and O. Heinonen, (433 pages, IOP Publishing, Bristol, 1991)
2. Composite Fermions, O. Heinonen (editor), 491 pages, World Scientific, Singapore, 1998
3. A Quantum Approach to Condensed Matter, Philip L. Taylor and O. Heinonen (Cambridge University Press, 2002)
4. Novel Materials and Devices for Spintronics, S. Sanvito, O. Heinonen, V.A. Dediu, and N. Rizzo (editors) (Materials Research Society Symposium Proceedings 1183, 2009).

Patents

33 US Patents

Synergistic Activities

- Member APS/GMAG Executive Committee 2010 – present
- Member, IEEE MagSoc AdCom 2008 – 2010
- Editorial Board, *Journal of Magnetism and Magnetic Materials,* 2006 -2008.
- Co-organizer of professional meetings and workshops including: Program co-chair *10th Joint MMM/Intermag Conference*, 2007, Baltimore; Co-chair *ECI Conference on Advances in Magnetic Nanostructures*, 2009, Aspen; Symposium organizer *Novel Materials and Devices for Spintronics*, MRS Spring Meeting, 2009, San Francisco; *Workshop on Resistive Switching and Memristors*, 2010, UC Davis; co-organizer *Workshop on Materials to Enable Low-Power Non-Volatile Memories: Oxides and Beyond*, 2010, ANL; Organizer of workshop on Computational Chemistry and Materials, Argonne Jan 11, 2013
- Lecturer at international schools, including NSF Summer School on Magnetism, Boulder, CO 2003; Applied Spintronics, University of Gothenburg, 2011

Ph.D. Thesis Advisor: Philip Taylor (Case Western Reserve University)
Post-doctoral advisors: Walter Kohn (UCSB), Philip Taylor (Case Western Reserve U)