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Professional Preparation:

B.S. 1998 Massachusetts Institute of Technology; Materials Science
Ph.D. 2002 Eindhoven University of Technology, The Netherlands; Physics (cum laude)

Professional Appointments:

2005 - Present Assistant Professor, Department of Physics and Astronomy and MINT Center, University of Alabama
2002 - 2005 Postdoctoral Associate, Francis Bitter Magnet Laboratory, MIT

Refereed Publications most related to the proposal:

P. LeClair, J. S. Moodera, J. Philip, and D. Heiman, "Coexistence of Ferromagnetism and Superconductivity in Ni/Bi bilayers", *Phys. Rev. Lett.* **94**: #037006 (2005)
M. van Kampen, C. Josza, J. T. Kohlhepp, P. LeClair, L. Lagae, W.J.M. de Jonge, and B. Koopmans, "All-Optical Probe of Coherent Spin Waves", *Phys. Rev. Lett.* **88**: #227201 (2002)
J. Philip, A. Punnoose, B. I. Kim, K. M. Reddy, S. Layne, J. O. Holmes, B. Satpati, P. R. LeClair, T. S. Santos, and J. S. Moodera, "Carrier-Controlled Ferromagnetism in Transparent Oxide semiconductors", *Nature Materials* **5**: 298-304 (2006)
P. Padhan, P. LeClair, A. Gupta, K. Tsunekawa, and D. D. Djayaprawira, "Frequency-Dependent Magnetoresistance and Magnetocapacitance Properties of Magnetic tunnel Junctions with MgO Tunnel Barriers", *Appl. Phys. Lett.* **90**: 142105 (2007)
W. Xu, G. J. Szulczewski, P. LeClair, I. Navarrete, R. Schad, G. Miao, H. Guo, and A. Gupta, "Tunneling Magnetoresistance Observed in $\text{La}_{0.67}\text{Sr}_{0.33}\text{MnO}_3$ /Organic Molecule/Co Junctions", *Appl. Phys. Lett.* **90**: #072506 (2007)

Other significant publications:

P. LeClair, J. T. Kohlhepp, H. J. M. Swagten, and W. J. M. de Jonge, "Interfacial Density of States in Magnetic Tunnel Junctions", *Phys. Rev. Lett.* **86**: 1066 (2001).
P. LeClair, H. J. M. Swagten, J. T. Kohlhepp, R. J. M. van de Veerdonk, and W. J. M. de Jonge, "Apparent Spin Polarization Decay in Cu-Dusted Co- Al_2O_3 -Co Tunnel Junctions", *Phys. Rev. Lett.* **84**: 2933 (2000).
P. LeClair, H. J. M. Swagten, and J. S. Moodera, "Spin Polarized Electron Tunneling", in *Ultrathin Magnetic Structures III: Fundamentals of Nanomagnetism*, Eds. B. Heinrich and J. A. C. Bland, Springer, Berlin (2005) (book chapter).
P. LeClair and J. S. Moodera, "Spin Electronics – a Quantum Leap", *Nature Mat.* **2**: 707 (2003).
E. Y. Tsymbal, O. N. Mryasov, and P. LeClair, "Spin-Dependent Tunneling in Magnetic Tunnel Junctions", *J. Phys.: Cond. Matt.* **15**: R100 (2003) (solicited review).

Synergistic Activities:

Undergraduate advisor for the Physics & Astronomy Department (2008-)
Mentoring high school summer students (including many under-represented and international students) in research projects for several years (2002-present).
Supervising and co-supervising REU students (1999-present).
Faculty supervisor for the undergraduate society of physics students (2006-).
Seminar and information session with prospective graduate students at U. Southern Miss. (2005) and West Georgia University (2006).
Community outreach to promote the world year of physics during athletic events (2005).

Recipient of a college of Arts and Sciences teaching grant from U. Alabama for the development of a low-cost, interactive tutorial on basic electronic circuits (2006-2007)

Developed a novel curriculum for introductory electricity and magnetism, including a new textbook

5 publications with undergraduate co-authors under my mentorship or co-mentorship

Professional Honors and Awards:

Review paper entitled "Spin-Dependent Tunneling in Magnetic Tunnel Junctions" chosen as one of the "Top Papers 2003 Showcase" for Journal of Physics, Condensed Matter

Paper entitled "Interfacial Sensitivity and Zero-Bias Anomalies in Magnetic Tunnel Junctions" chosen as the Editors' Choice, Physica Status Solidi **189**, 585 (2002)

Best student presentation award, MMM conference 2001

Collaborators & Affiliations (past 5 years)

Recent Research Collaborators: J. S. Moodera (MIT); D. Heiman (Northeastern); E. Y. Tsymbal (Nebraska); J. G. Lu (U.C. Irvine); B. Koopmans & H. J. M. Swagten (Eindhoven); M. Muenzenberg (Göttingen); A. Thomas (Bielefeld); B. Satpati (Bhubaneswar); S. Pennycook & M. Varela (ORNL); G. Xiao (Brown); A. Punnoose (Boise State); J. M. Maclaren (Tulane); A. Davis (ONR).

Dissertation Advisor: W.J.M. de Jonge, Eindhoven University of Technology (The Netherlands)

Past and Present Students (co-advisor) and Postdocs: E. Stough (UG), M. Pathak (G), V. Mohandoss (G), B. Hoex (UG), C. H. van de Vin (UG), V. Misra (UG), P. Deuchamps (UG), R. Koppes (UG), K. Knechten (UG), J. Reichwein (UG), R. Sun (UG), A. Patterson (UG).