

Durga Paudyal

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Education

- Ph. D. (2000-2004), Condensed Matter Physics, S. N. Bose National Centre for Basic Sciences (Jadavpur University), Kolkata, India, (Degree awarded in 2005).
- Post M. Sc., Physics, S. N. Bose National Centre for Basic Sciences, Kolkata, India, 2000.
- M. Sc., Physics, Tribhuvan University, Nepal, 1995.

Professional Appointments

- Assistant Scientist, Ames Laboratory - US DOE, Iowa State University, Ames, Iowa, 2008 - present.
- Post Doctoral Research Associate, Ames Laboratory - US DOE, Iowa State University, Ames, Iowa, 2004 - 2008.
- Lecturer of Physics, Central Department of Physics, Tribhuvan University, 1995 - 1999

Fellowships

- A five year research fellowship from the Department of Science and Technology of the Government of India for Post M. Sc. and Ph. D. work at S. N. Bose National Centre for Basic Sciences, Kolkata, India, 1999 - 2004.
- Visiting Research Scholar, the Abdus Salam International Center for Theoretical Physics (ICTP), Trieste, Italy, Sept. 3, 2001 to Sept. 15, 2001 and Aug. 26, 2003 to Sept. 9, 2003.

Professional Society Service-Activities

- Peer reviewing for scientific journals: *Physical Review B*, *Journal of Physics: Condensed Matter*, *Journal of Physics D: Applied Physics*, *American Chemical Society Nano*, *Applied Physics Letters*, *Journal of Alloys and Compounds*.
- Peer reviewing for book chapters: Handbook on the physics and chemistry of rare earths.
- Peer reviewing for conference proceeding: Thermag III, the 3rd International Conference of IIR on Magnetic Refrigeration at Room Temperature.

Membership of Professional Societies

- Member of American Physical Society
- Life member of Nepal Physical Society

Research Interests

- First principles electronic structure theory.
- Electronic, magnetic and magnetostructural properties of extraordinary responsive magnetic rare earth materials from first principles calculations.
- Finite temperature and field dependent magnetothermodynamic modeling of complex magnetic rare earth materials using outputs from first principles calculations.
- Phase stability analysis of rare earth based alloys and compounds.

Publications

- "Magnetostructural transition in Ho₅Ge₄," Niraj K. Singh, Durga Paudyal, Ya. Mudryk, V. K. Pecharsky, K. A. Gschneidner, Jr., *Phys. Rev. B* 79, 094115 (2009).
- "Magnetic Entropy Change from First Principles and Magnetothermodynamic Models", Durga Paudyal, V. K. Pecharsky, and K. A. Gschneidner, Jr., Proceedings of THERMAG III, The 3rd International Conference of IIR on Magnetic Refrigeration at Room Temperature, May 11 - 15, 2009, Embassy Suites, Des Moines, Iowa, U.S.A.
- "Understanding the extraordinary magnetoelastic behavior in GdNi," Durga Paudyal, Ya. Mudryk, Y. B. Lee, V. K. Pecharsky, K. A. Gschneidner, Jr., and B. N. Harmon, *Phys. Rev. B*, 78, 184436, 2008.
- "Study of phase stability in a class of binary alloys using augmented space recursion based orbital peeling technique," K Tarafder, M Rahaman, D Paudyal, B Sanyal, O Eriksson and, A Mookerjee, *Physica B* 403, 4111, 2008.
- "Making the most of the magnetic and lattice entropy changes," V. K. Pecharsky, K. A. Gschneidner, Jr., Ya. Mudryk, and D. Paudyal, *J. Magn. Magn. Mater.* Available online 7 March, 2008.
- "Origins of ferromagnetism and antiferromagnetism in Gd₅Ge₄," Durga Paudyal, V. K. Pecharsky, and K. A. Gschneidner, Jr., *J. Phys.: Condens. Matter* 20, 235235 (2008).
- "Interplay between Er and Co magnetism in ErCo₂," J. Herrero-Albillos, D. Paudyal, F. Bartolome, L. M. García, V. K. Pecharsky, K. A. Gschneidner, Jr., A. T. Young, N. Jaouen, and A. Rogalev, *J. Appl. Phys.*, 103, 07E146 (2008).
- "Magnetostructural transition in Gd₅Si_{0.5}Ge_{3.5}, magnetic and x-ray powder diffraction measurements, and theoretical calculations," Ya. Mudryk, D. Paudyal, V. K. Pecharsky, and K. A. Gschneidner, Jr., *Phys. Rev. B* 77, 024408 (2008).
- "Magnetism of Gd₅Ge₄ from first principles," Durga Paudyal, V. K. Pecharsky, K. A. Gschneidner, Jr., and B. N. Harmon, *Phys. Rev. B* 75, 094427 (2007).
- "Electron correlation effects on the magnetostructural transition and magnetocaloric effect in Gd₅Si₂Ge₂," Durga Paudyal, Vitalij K. Pecharsky, Karl A. Gschneidner, Jr., and Bruce N. Harmon, *Phys. Rev. B* 73, 144406 (2006).
- "Experimental and theoretical study of annealed Ni-Pt alloys," Uday Kumar, P. K. Mukhopadhyay, Biplab Sanyal, Olle Eriksson, Per Nordblad, Durga Paudyal, Kartick Tarafder, and Abhijit Mookerjee, *Phys. Rev. B* 74, 064401 (2006).

- “Ordering in 3d–5d (CuAu) and segregation in 3d–4d (CuAg) systems,” Durga Paudyal and Abhijit Mookerjee, *Physica B: Condensed Matter* 366, 55 (2005).
- “Magnetic transition in NiPt alloy systems: experiment and theory,” Uday Kumar, K.G. Padmalekha, P.K. Mukhopadhyay, Durga Paudyal, and Abhijit Mookerjee, *J. Magn. Mater.* 292, 234 (2005).
- “Electronic, magnetic structure and phase stability in Ni-Pt and Co-Pt alloy systems”, Durga Paudyal, Tanusri Saha-Dasgupta, and Abhijit Mookerjee, Proceedings of International Conference on Advanced Materials Design and Development (ICAMDD-2005), Goa, India, 2005.
- “Phase stability analysis in Fe-Pt and Co-Pt alloy systems: An augmented space study,” Durga Paudyal, Tanusri Saha-Dasgupta, and Abhijit Mookerjee, *J. Phys.: Condens. Matter* 16, 7247 (2004).
- “Phase stability and magnetism in NiPt and NiPd alloys,” Durga Paudyal and Abhijit Mookerjee, *J. Phys.: Condens. Matter* 16, 5791 (2004).
- “Spin-orbit coupling: a recursion method approach,” Ain-ul Huda, Durga Paudyal, Abhijit Mookerjee, and Mesbahuddin Ahmed, *Physica B: Condensed Matter* 351, 63 (2004).
- “Magnetic properties of X-Pt (X = Fe, Co, Ni) alloy systems,” Durga Paudyal, Tanusri Saha-Dasgupta, and Abhijit Mookerjee, *J. Phys.: Condens. Matter* 16, 2317 (2004).
- “Electronic structure and ground state properties of non-magnetic NiPt systems,” Durga Paudyal and Abhijit Mookerjee, *International Journal of Modern Physics B* 17, 4447 (2003).
- “Study of phase stability in NiPt alloys,” Durga Paudyal, Tanusri Saha-Dasgupta, and Abhijit Mookerjee, *J. Phys.: Condens. Matter* 15, 1029 (2003).
- “Effective Pair Interactions in Alloys”, Durga Paudyal, Tanusri Saha-Dasgupta, and Abhijit Mookerjee, Proceedings of Nepal Physical Society Conference, Central Department of Physics, Tribhuvan University, Kathmandu, Nepal, 2001