

CSU PHYSICS COLLOQUIUM

“Rare Earth Magnetism and Quantum Phenomena ”

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Iowa State University

Monday, April 24th at 4:00 PM

120 Engineering (Hammond Auditorium)

Abstract

Abstract - The increasing technological importance of rare earth based magnetic and quantum materials is attracting the attention of scientists from all over the world. We have great challenges ahead in terms of experimental synthesis and characterization as well as fundamental theoretical and computational understandings of these materials. We present here a systematic theoretical and computational research, on rare earth-based materials for permanent magnet and magneto-response, performed over the years by developing and employing advanced density functional theory and finite-temperature magneto-thermodynamic models. Moving forward, we then present an outlook of quantum materials predictions and progress made toward quantum information science with rare earths.

Biography

Durga Paudyal is a scientist at Ames National Laboratory and an adjunct associate professor at Iowa State University. Formerly, he was a postdoctoral research associate and an assistant scientist at the same lab. His research experience is in rare earth magnetism, including permanent magnets, magnetocaloric effect, quantum materials, and quantum information science. He has more than 115 publications in reputed journals and has given more than 50 invited talks and panel discussions for various conferences; he has been the principal investigator for rare earth and quantum projects at the Ames National Laboratory. Paudyal is an editor and editorial board member for Frontiers of Quantum Materials and Materials Science. He has organized workshops and symposia, and chaired sessions in conferences. He has also served as a program committee member at various conferences related to magnetism and condensed matter physics.

