

The National MagLab – Overview and HEP Partnerships



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Abstract:

The National High Magnetic Field Laboratory (NHMFL or MagLab) is a facility at Florida State University, the University of Florida, and Los Alamos National Laboratory that performs research at high magnetic fields in materials physics, chemistry, geochemistry, and biology. It is the only magnet Lab in the US and is the largest with the highest fields, and is the most diverse of the nine magnet labs in the world. Our MagLab has seven user facilities and two laboratories – with the Applied Superconductivity Laboratory having been intimately involved with the high-energy physics community for decades in the research and development of superconducting materials: HEP has been

the MAJOR driver for large-sale superconducting applications since the 1960s (Nb:Ti bubble chambers). After presenting an overview of the broad science at the MagLab, and our successes in education and outreach, I will present some of our triumphs in SC materials, including our most recent contribution to the Hi-Luminosity Upgrade of the LHC with superconducting Nb₃Sn magnets. If time, I will present our research on the possible use of high-T_c materials in synchrotrons; and why it is important.