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Large Magnetic Anisotropy in HfMnP DAVID PARKER, Oak Ridge National Lab, TEJ LAMICHHANE, Ames Lab, Ames. Iowa, VALENTIN TAUFOUR, University of California, Davis, MORGAN MASTERS, Ames Lab, Ames. Iowa, SRINIVASA THIMMAIAH, SER'GEY BUD'KO, PAUL CANFIELD, Ames Lab, Ames, Iowa — We present a theoretical and experimental study of two little-studied manganese phosphide ferromagnets, HfMnP and ZrMnP, with Curie temperatures above room temperature. We find an anisotropy field in HfMnP approaching 10 T - larger than that of the permanent magnet workhorse NdFeB magnets. From theory we determine the source of this anisotropy. Our results show the potential of 3d-element-based magnetic materials for magnetic applications.

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