The High Field MRI Facility at Penn State

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Magnetic resonance imaging (MRI) is one of the major imaging modalities in the life sciences; however, it is an underutilized technology in the material sciences. The development of new MRI techniques has led to new applications, such as studying battery degeneration, visualizing defects in 3D printed objects, monitoring moisture distribution in drying concrete, and imaging teeth. With the newly integrated micro CT system into our facility the characterization of materials, especially biomaterials, can now be conducted multimodally.

The facility comprises a 7 tesla Bruker BioSpec for preclinical imaging, a 14 tesla microimaging system from Bruker, as well as a SkyScan micro-CT system. In this presentation, we will outline current projects that are conducted in cooperation with faculty from several departments and highlight MR techniques that could be used to support new research projects.