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Realization of FRIB at Michigan State University[1]

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The 2007 Long Range Plan for Nuclear Science had as one of its highest recommendations the "construction of a Facility for Rare Isotope Beams (FRIB) a world-leading facility for the study of nuclear structure, reactions, and astrophysics. Experiments with the new isotopes produced at FRIB will lead to a comprehensive description of nuclei, elucidate the origin of the elements in the cosmos, provide an understanding of matter in the crust of neutron stars, and establish the scientific foundation for innovative applications of nuclear science to society." A heavy-ion driver linac will be used to provide stable beams of >200 MeV/u at beam powers up to 400 kW that will be used to produce rare isotopes. Experiments can be done with rare isotope beams at velocities similar the driver linac beam, at near zero velocities after stopping in a gas cell, or at intermediate velocities (0.3 to 12 MeV/u) through reacceleration. An overview of the design proposed for implementation of the DOE national users facility FRIB on the campus of Michigan State University will be presented.

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