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The Active Target Time Projection Chamber (AT-TPC) DANIEL BAZIN, Michigan State Univ, TAN AHN, University of Notre Dame, YASSID AYYAD, Lawrence Berkeley Laboratory, SAUL BECEIRO-NOVO, LISA CARPENTER, MARCO CORTESI, Michigan State University, MICHELLE KUCHERA, Lawrence Berkeley Laboratory, WILLIAM LYNCH, WOLFGANG MITTIG, JASPREET RANDHAWA, CLMENTINE SANTAMARIA, NATHAN WATWOOD, JOHN YURKON, Michigan State University — The AT-TPC was recently built and commissioned at the National Superconducting Cyclotron Laboratory at Michigan State University. This gas-filled detector uses an active-target design where the gas acts as both the tracking medium and the reaction target. This new type of instrument can be used with low-intensity radioactive beams in various energy regimes, from around the Coulomb barrier to a few hundreds of MeV/u. In contrast with the traditional passive target approach, the main asset of the active-target methodology is its enhanced luminosity and full kinematic acceptance combined with very good energy and angular resolutions. An overview of its present implementation and use with ReA3 re-accelerated radioactive beams will be presented, as well as the particular methods and tools used to analyze its data. A simulation of the detector's performance and results from its commissioning with a radioactive 46Ar beam will also be presented. This work is supported by the National Science Foundation under grants MRI-0923087 and PHY-1404442.

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