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Search for Cluster Structure in ^{14}C by Investigation of ^{10}Be + ^{4}He Resonant Scattering with the Prototype AT-TPC A. FRITSCH, NSCL Michigan State University / College of Wooster, S. BECEIRO-NOVO, NSCL Michigan State University, D. SUZUKI, IPN Orsay, W. MITTIG, NSCL Michigan State University, T. AHN, NSCL Michigan State University / University of Notre Dame, D. BAZIN, Z. CHAJECKI, W. LYNCH, A. SHORE, NSCL Michigan State University, J.J. KOLATA, University of Notre Dame, A. HOWARD, Aarhus University / University of Notre Dame, A. ROBERTS, LANL / University of Notre Dame, X. TANG, IMP Lanzhou / University of Notre Dame, F. BECCHETTI, University of Michigan — A half-scale prototype Active Target-Time Projection Chamber (AT-TPC) was built at the National Superconducting Cyclotron Laboratory (NSCL) as part of the development of the full-scale AT-TPC device. The prototype AT-TPC was used to investigate ^{14}C cluster structures by way of a 38 MeV ^{10}Be beam incident on a 90:10 He:CO_2 active target gas at the University of Notre Dame in October 2011. The ^{10}Be beam was produced by Notre Dame's TwinSol and delivered to the prototype AT-TPC. Multiple resonances in scattering ^{10}Be on ^{4}He were observed. Spins and parities of resonances were determined. The resonances' relevance to ^{14}C clustering will be discussed and presented. This work was partially supported by the US NSF under Contract No. PHY-0923087.

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