Abstract Submitted
for the APR16 Meeting of
The American Physical Society

Search for α-Cluster Structure in Exotic Nuclei with the Prototype Active-Target Time-Projection Chamber

A. FRITSCH, Gonzaga Univ, Y. AYYAD, D. BAZIN, S. BECEIRO-NOVO, J. BRADT, L. CARPENTER, M. CORTESI, W. MITTIG, National Superconducting Cyclotron Laboratory / Michigan State University, D. SUZUKI, RIKEN Nishina Center, T. AHN, J.J. KOLATA, University of Notre Dame, F.D. BECCHETTI, University of Michigan, A.M. HOWARD, Aarhus University — Some exotic nuclei appear to exhibit α-cluster structure. While various theoretical models currently describe such clustering, more experimental data are needed to constrain model predictions. The Prototype Active-Target Time-Projection Chamber (PAT-TPC) has low-energy thresholds for charged-particle decay and a high luminosity due to its thick gaseous active target volume, making it well-suited to search for low-energy α-cluster reactions. Radioactive-ion beams produced by the TwinSol facility at the University of Notre Dame were delivered to the PAT-TPC to study nuclei including $^{14}$C and $^{14}$O via α-resonant scattering. Differential cross sections and excitation functions were measured. Preliminary results from our recent experiments will be presented.

1This work is supported by the U.S. National Science Foundation.

Adam Fritsch
Gonzaga Univ

Date submitted: 27 Jan 2016
Electronic form version 1.4