

Abstract Submitted
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Investigating 3-body Decays of Cluster States with the PAT-TPC¹ LISA CARPENTER, Y. AYYAD LIMONGE, D. BAZIN, S. BECEIRO-NOVO, J. BRADT, M. CORTESI, W. MITTIG, National Superconducting Cyclotron Laboratory/Michigan State University, T. AHN, J.J. KOLATA, Z. MEISEL, University of Notre Dame, F.D. BECHETTI, University of Michigan, A. FRITSCH, Gonzaga University, A. HOWARD, Aarhus University — Recent model calculations with most advanced methods for cluster states have shown the need of experimental data to probe the structure of light exotic nuclei, including those with α -clustering, such as ^{14}C . The Prototype Active Target Time Projection Chamber (PAT-TPC) allows us to investigate these types of structures, giving access to the full excitation function with a single beam energy. This type of experiment measures resonances in ^{14}C that can be compared to the models. With an improved Micromegas pad plane with a circular backgammon design we are able to investigate 3-body decays in addition to 2-body scattering. The measurements were carried out by resonant alpha-scattering on ^{10}Be beam delivered by the *TwinSol* facility at the University of Notre Dame. We also observed the 3-body decay of the Hoyle State in ^{12}C from a ^{12}N or ^{12}B beam with the same device. Preliminary results will be presented.

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