

Workshop on Active Targets and Time Projection Chambers for  
High-intensity and Heavy-ion beams in Nuclear Physics

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## Search for clustering in proton-rich nuclei with the Prototype AT-TPC

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Clustering in light nuclei is an important structural feature that has important implications for nuclear theory and understanding nucleosynthesis in astrophysical environments. But more data on where clustering exists, especially in light unstable nuclei, is needed to constrain nuclear models and understand the conditions necessary for prominent cluster structure. In order to look for clustering in proton-rich light nuclei, we have performed a resonant alpha scattering measurement using the  $^{10}\text{C}(\alpha,\alpha)^{10}\text{C}$  reaction to search for cluster states in  $^{14}\text{O}$  using the Prototype AT-TPC at the University of Notre Dame. Challenges and progress in the analysis of this experiment including the development of tracking algorithms and their effectiveness will be presented as well as planned future developments for future experiments related to reactions with radioactive nuclei in the light mass region.

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