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Study of the structure of ^{14}O using resonant scattering[1] TAN AHN, University of Notre Dame, TWINSOL COLLABORATION — Theoretical cluster models and recent experimental work have given evidence for prominent cluster structures in the light $Z \neq N$ nucleus ^{14}C. In ^{14}C, the presence of additional nucleons are important for the formation of unique cluster structures. In order to extend the search for cluster structures to proton-rich nuclei, we have performed an experiment using ^{10}C + α resonant scattering to probe levels in ^{14}O, the isobaric mirror of ^{14}C. A radioactive beam of ^{10}C produced with the TwinSol superconducting solenoids was impinged on a He gas target provided by the the Prototype Active-Target Time Projection-Chamber. Charged-particle tracks were recorded to deduce scattering cross sections. Results of the experiment and analysis in terms of R-matrix will be presented as well as possible future reactions that can complement our understanding of this scattering reaction.

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