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Measurement of ^{17}F breakup on ^4He using the pAT-TPC

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^{17}F is a well-known proton halo nucleus ($S_p = 0.6$ MeV) that can be described as a ^{16}O core nucleus plus a weakly bounded proton. The ^{17}F breakup mechanism can be induced by electromagnetic and nuclear interactions. Previous experiments of ^{17}F breakup on ^{58}Ni and ^{208}Pb nuclei show a strong interference of Coulomb and nuclear breakup processes. New experimental data of ^{17}F breakup on a ^4He target were measured using the prototype Active Target-Time Projection Chamber (pAT-TPC). The pAT-TPC is a detector that uses a gas volume as both target and tracking medium, covering almost a 4π solid angle. The detector system allows a particle tracking from where it is possible to extract the scattering angles and the reaction vertex with good precision. Preliminary results of exclusive and inclusive breakup will be discussed in this talk.

Primary authors: FERRARI FORTINO, Guilherme (Instituto de Física da USP); Dr ZAMORA, Juan (University of Sao Paulo)

Presenter: FERRARI FORTINO, Guilherme (Instituto de Física da USP)

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