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Experimental Investigation of Pontecorvo Reactions in ${}^3\text{He}$ Using a Simplified Apparatus

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The Pontecorvo reactions are rare antiproton annihilation processes forbidden on a free nucleon but allowed on nucleons bound in nuclei. Some measurements were performed in the past at CERN's LEAR by using deuterium target.

The measurement of branching ratios of reactions is of interest as it can contribute to clarifying the annihilation mechanism, discriminating among different existing theoretical models.

Feasibility study of a measurement of Pontecorvo reactions in ${}^3\text{He}$ ($\bar{p}{}^3\text{He} \rightarrow pn$) at the AD facility using a simple experimental setup as an alternative to the conventional employment of a magnetic spectrometer is presented and discussed.

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Track Classification: Nuclear and Hadronic Physics with antiprotons and antineutrons