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Measurements of Gamow-Teller strength distributions via (t,³He) and (³He,t) reactions.¹ REMCO G.T. ZEGERS, National Superconducting Cyclotron Laboratory, The Joint Institute for Nuclear Astrophysics and the Department of Physics, Michigan State University, EXP. 96031 NSCL COLLABORATION, EXP. E219 RCNP COLLABORATION — The $(t, {}^{3}\text{He})$ and $({}^{3}\text{He}, t)$ reactions at beam energies exceeding 100 MeV/nucleon are important tools to study the spinisospin response of nuclei. Of particular interest is the extraction of Gamow-Teller strengths (B(GT)), since these provide direct information about weak-interaction rates that serve as input for stellar evolution calculations. Accurate measurements provide a way to test shell-model codes that can then be used to make estimates for stellar conditions that cannot be achieved in the laboratory. The combined capability to perform high-resolution (³He,t) and (t, ³He) experiments (at RCNP, Osaka and the NSCL, respectively) makes these probes especially suited to perform such studies. The linear relationship between cross section and B(GT) has to be validated experimentally. $({}^{3}\text{He},t)$ and $(t,{}^{3}\text{He})$ data on a variety of targets will be presented that is used to test the method, focusing on results from ${}^{26}Mg({}^{3}He,t)$ and ${}^{26}Mg(t,{}^{3}He)$ for which Gamow-Teller strengths have extracted over large excitation-energy ranges.

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