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,³He) and (³He,t) reactions at beam energies exceeding 100 MeV/nucleon are important tools to study the spin-isospin 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. (³He,t) and (t,³He) data on a variety of targets will be presented that is used to test the method, focusing on results from ²⁶Mg(³He,t) and ²⁶Mg(t,³He) for which Gamow-Teller strengths have extracted over large excitation-energy ranges.

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