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Study of Resonant States With Radioactive Ion Beams: Observation of Simultaneous Two-Proton Emission.

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A radioactive ion beam of ^{17}F was used to study several resonant states in ^{18}Ne. We have observed the simultaneous two-proton emission from a resonance in ^{18}Ne obtained with the reaction ^{17}F + H at 44 MeV. The experiment was performed at the Holifield Radioactive Ion Beam Facility (HRIBF) of Oak Ridge National Lab, and is part of a program to study resonant states in light nuclei in inverse kinematics using the thick target technique described in [1]. We discuss the data in terms of the possible mechanisms of simultaneous decay: di-proton (^{2}He) emission or direct three body decay.

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[1] A. Galindo-Uribarri, Nucl. Instr. and Meth. Phys. Res. B (in press).