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Investigation of resonances in ^{20}Mg: Implications for astrophysics and nuclear forces JASPREET RANDHAWA, RITUPARNA KANUNGO, Saint Mary's University, MARTIN ALCORTA, TRIUMF, CHRISTINA BURBADGE, University of Guelph, DEVIN BURKE, McMaster University, GREG CHRISTIAN, BARRY DAVIDS, JULIA EVEN, GREG HACKMAN, JACK HENDERSON, TRIUMF, SHIGERU ISHIMOTO, KEK, SATBIR KAUR, Dalhousie University, MATTHEW KEEFE, Saint Mary's University, REINER KRUECKEN, JON LIGHTHALL, MOHAMAD MOUKADDAM, TRIUMF, ELIZABETH PADILLA-RODAL, Universidad Nacional autonoma de Mexico, JENNA SMITH, TRIUMF, JOSEPH TURKO, University of Guelph, ORRY WORKMAN, Saint Mary's University — ^{18}Ne(2p,γ)^{20}Mg provides a possible pathway for breakout from the hot CNO cycles to the rp-process in type I X-ray bursts. This reaction rate is uncertain due to lack of any experimental information on the resonant states in ^{20}Mg above proton emission threshold. Recent calculations using nuclear forces from chiral perturbation theory predict quite a different level structure for ^{20}Mg with and without inclusion of three nucleon forces. These differences make study of ^{20}Mg states important to constraint both nuclear theory and this reaction rate. We have investigated the excited states in ^{20}Mg through inelastic deuteron scattering. The experiment was performed using the IRIS facility at TRIUMF,Canada. The ^{20}Mg beam with an average intensity of 500 pps and energy of 8.5A MeV was directed at novel thin windowless solid deuteron target. Experiment and initial observations will be discussed.

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