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Measurements of interest to ^{18}F nucleosynthesis with the JENSA gas-jet target[1] D.W. BARDAYAN, Oak Ridge National Laboratory, JENSA COLLABORATION — The observation of ^{18}F decay in novae would provide a direct test of nova models. To interpret such observations, the nuclear reactions that create and destroy ^{18}F in novae must be understood. The destruction primarily occurs through the ^{18}F$(p,\alpha)^{15}$O reaction via resonances from states in ^{19}Ne. Significant uncertainties remain concerning the properties of these states near the proton threshold at 6411 keV. We will use the JENSA (Jet Experiments in Nuclear Structure and Astrophysics) gas jet target at Oak Ridge National Laboratory to study these levels via the ^{20}Ne$(p,d)^{19}$Ne reaction. In the longer term, we plan to study one of the primary reactions for ^{18}F creation, the ^{17}F$(p,\gamma)^{18}$Ne reaction, by bombarding localized ^{3}He targets in JENSA with radioactive ^{17}F beams produced at the ReA3 facility at the National Superconducting Cyclotron Laboratory. The (^{3}He,d) reaction will be measured on ^{17}F beams to constrain the ^{17}F$(p,\gamma)^{18}$Ne direct capture rate at nova temperatures. The JENSA target along with first results and future plans will be presented.

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