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Commissioning a Rotating Target Wheel Assembly for Heavy Element Studies[1] L.D. FIELDS, M.E. BENNETT, D.A. MAYOROV, C.M. FOLDEN, Texas A&M University Cyclotron Institute — The heaviest elements are produced artificially by fusing nuclei of light elements within an accelerator to form heavier nuclei. The most direct method to increase the production rate of nuclei is to increase the beam intensity, necessitating the use of a rotating target to minimize damage to the target by deposited heat. Such a target wheel was constructed for heavy element research at Texas A&M University, Cyclotron Institute, consisting of a wheel with three banana-shaped target cutouts. The target is designed to rotate at 1700 rpm, and a fiber optic cable provides a signal to trigger beam pulsing in order to avoid irradiating the spokes between target segments. Following minor mechanical modifications and construction of a dedicated electrical panel, the rotating target assembly was commissioned for a beam experiment. A 15 MeV/u beam of ^{20}Ne was delivered from the K500 cyclotron and detected by a ruggedized silicon detector. The beam pulsing response time was characterized as a function of the rational frequency of the target wheel. Preliminary analysis suggests that the K500 is capable of pulsing at rates of up to 250 Hz, which is sufficient for planned future experiments.

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Lindsay Fields
Texas A&M University Cyclotron Institute

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