

Research Development Fund – Fall FY17 Proposal Template

Proposal Title: Cyclotron Experimental Hall

Lead contact:

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Key Participating units: Cyclotron Institute, College of Science, College of Engineering

Anticipated Request Amount (\$): 2052000

Executive summary of the intended proposal:

The Cyclotron Institute (CI), which is a DOE Center of Excellence, provides the primary infrastructure for Texas A&M's research and education programs in nuclear chemistry and nuclear physics. The CI is a cornerstone to the IUMRI Nuclear Solutions for the 21st Century. Four outstanding young faculty members have recently been added to the CI and the Nuclear Solutions Institute. The CI's international stature also allowed us to recruit Yuri Oganessian, discoverer of six new elements, as a TIAS fellow. The CI is in the process of an accelerator upgrade, funded by the DOE and the Welch Foundation. The upgrade will make Texas A&M one of only two facilities in the world with fast, stopped and reaccelerated radioactive beams. The breadth of the Institute research program has grown substantially, and there is a need for a new experimental hall to fully realize the capabilities of the upgraded facility. An internal planning report "strongly endorses the need to expand the facility." If approved, this project would help propel the already internationally recognized research program at the CI to a new level.

We have estimated the cost of the new experimental hall to be \$3.052 M (detailed below). While the cost of a new experimental hall cannot be funded directly from a federal grant, we are prepared to commit the IDC return from the DOE "Cyclotron Based Nuclear Science" grant toward this project. Additionally, we are prepared to commit revenue from the beam time sales to the new experimental hall. While this will result in constrained funding for our research program in the near term, in the long term the new experimental hall will better position us for growth in our research program. The current research program is funded by over \$4M/yr in federal funding. Because construction of the new experimental hall is not allowable as a cost in federal grants we seek support from the RDF for this key critical infrastructure, which will enable us to pursue more federal funding for the experimental programs that will be situated in the new hall.

Without the new experimental hall we will have severe space limitations within the experimental areas accessible to cyclotron beams. This will hamper the research plans of our faculty, prevent pursuing federal grants for new equipment and possibly lead to cancellation of an existing agreement with Lawrence Livermore National Laboratory, which uses one of our existing beam lines to study surrogate reactions that are important for nuclear stockpile stewardship and national security applications.