**Research Development Fund – Fall FY16 Cover Page Template**

**SUBMISSION DEADLINE: September 15, 2015 at 12 noon CDT to** **rdf@tamu.edu**

**Proposal Title:** A Cabled Array from Galveston, Texas, to the Flower Garden Banks National Marine Sanctuary for excellence in Geosciences and Engineering.

**Lead contact:**

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**Key Participating units: Geosciences, Engineering**

**Anticipated Request Amount ($): 507,000**

**Executive Summary** : Our vision is to elevate A&M’s ocean-based science and engineering to be among the top Universities in the world. We require $507,000 to develop a feasibility study to deploy and operate a state-of-the-art double-armored fiber optic cable that is capable of delivering power (5kW per node) and two-way communications to a networked array of scientific sensors, acoustic devices, high-definition underwater cameras, and autonomous underwater vehicles which can power up while in the ocean. This would provide a long-lasting mechanism to establish a signature, high profile, and impactful union between Geosciences, Engineering and Galveston and serve the System, State and Nation with an outstanding facility rivaled by none in the US. In North America, University of Victoria and University of Washington currently operate the NEPTUNE and RSN cabled arrays to investigate geological processes of the oceanic earth crust. Our plan to install a cabled array to the beautiful and vibrant coral reefs of the Flower Garden Banks National Marine Sanctuary 112 miles south of Galveston, with other nodes focusing on other environments such as natural oil seeps, mud volcanoes etc. This will clearly set us apart from all other Ocean and Ocean Engineering programs nationally and globally. We will involve many member of the A&M system especially out colleagues at A&M Galveston where the cable will originate. We will contract Ocean Networks Canada (a world leader and operator of the NEPTUNE array) to do our feasibility study so that we can fundraise for the building of the cable. The study will take 6 months to complete and will involve Geosciences, Engineering and ONC Canada.

By providing real-time high resolution environmental observations, this array will meet the needs of many Stakeholders, including the general public, local, state, federal environmental managers, Industry (commercial and recreational), educators and scientists. Additionally, the array will provide a test-bed for multiple elements of the University (Geosciences, Engineering, Science, Medicine) to develop and test new instruments, systems, vehicles, sensors, materials, and pharmaceuticals. We have been in contact with the Perot Museum in Dallas who are interested in the educational and outreach components of this program. In these days of declining oil prices, oil and gas companies are looking for ways to decrease expenses though meeting the obligations that they have to maintain, service and repair infrastructure. This array with the associated power and data capabilities would allow companies to use remote vehicles for this “ticket to trade” as well as providing assets for A&M research enterprise to work on new instrumentation, equipment to provide to the oil and gas industry. We believe that the total requirement to establish this array will be between $25 and $40 million. The array will be funded by Corporate, Individual, Contract and Foundation support. The development of IP in new remote instrumentation, data analysis, modeling and education benefits will also help support this franchise.