Research Development Fund – FALL 2019 Application Template
SUBMISSION DEADLINE: ***Monday – October 14, 2019 at 12 noon CDT*** **to rdf@tamu.edu**

*****Applications that exceed page limits for any section or do not follow template will not be reviewed*****

Application Title: *Enhancing Biological and Materials Imaging Capabilities at TAMU Through Acquisition of Two High-Throughput Community Accessible Desktop MicroCT Scanners capable of high resolution scanning of small objects (0.5-300 mm in diameter)*

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Key Participating Units:
College of Agriculture and Life Sciences | College of Architecture | College of Geoscience | College of Science |

Anticipated Request Amount ($): $1,126,946.34

Non-destructive x-ray computed tomography (CT) scanning has revolutionized the way we investigate biological and non-biological materials, with potentially limitless application in all fields of science (from archeology to zoology). Despite the growing importance of CT scanning, the infrastructure to scan a diverse range of biological and non-biological materials is limited on the TAMU main campus, and researchers studying objects smaller than a St. Bernard puppy are forced to use CT-scanning services at other universities (at a high cost). Though multiple "medical" grade CT-scanners are available for use, these units are incapable of scanning small biological or non-biological objects (e.g., insects or microchips) at high resolution (microCT). The inability to scan smaller objects at high resolution locally not only places limits on the type of studies that TAMU researchers can conduct but also renders TAMU researchers less competitive for federal awards tailored towards this technology.

We intend to bolster the infrastructure for biological and materials imaging at TAMU through the purchase of two state of the art Bruker SKYSCAN microCT scanning units (SKYSCAN 1272 and 1273) that would allow, in combination, high resolution scanning of objects ranging in size from ~0.5 mm to 300 mm in diameter. The two units would be installed in COALS facilities on West campus but available for use by members of the entire TAMU research community, regardless of field of study, as well as a variety of external users. Five high-end workstations for image processing will be positioned on central and west campus to facilitate accessibility of CT scanning products to all campus users. The microCT units will complement the existing arsenal of high-end "medical" grade CT-scanning units that already enable cutting-edge research at TAMU and will significantly enhance the infrastructure for conducting 3D structural investigation and analysis of biological and non-biological materials at TAMU.