

**Application Title:** ESTABLISHING a MULTIDISCIPLINARY SOFT MATTER FACILITY (SoMF)

**Lead contact(s) for RDF Application:**

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**Executive Committee:** Yossef Elabd (CoE/TEES), Allison Rice-Ficht (HSC), Andreas Lendlein (CoE/TEES), Duncan Maitland (CoE/TEES), Svetlana Sukhishvili (CoE/TEES), and Karen Wooley (CoS)

**Proposed Oversight Committee:** Research Deans of CoE, CoS, AgriLife, and HSC, and co-sponsoring DHs

**Key Participating Units:** CoE/TEES, CoS, AgriLife, HSC

**Anticipated Request Amount (\$):** \$1.9M

**Executive summary of this application to utilize Research Development Funds:**

A team of PIs from Colleges of Engineering, Science, Agriculture and Life Sciences requests funds to establish a shared Interdisciplinary Soft Matter Facility (SoMF). Multifunctional polymer-based and soft materials have become a key enabling technology in healthcare, energy, transportation, nutrition and consumer products. These materials facilitate high-tech applications such as drug delivery, degradable implants, flexible electronics, and soft robotics. The current design of multifunctional soft materials integrates several functions, such as structural performance and stimuli-sensitivity or degradability. A detailed knowledge of structure of these hierarchically organized materials on different length scales and the capabilities to build them are strongly dependent on soft-material-specific characterization tools.

With the establishment of TAMU's SoMF, existing and new equipment for the chemical and physical characterization of soft matter will be made available to the entire TAMU community and interested external users (including other research organizations, industry, and hospitals). Some of this equipment, currently located in individual PIs' labs, will be relocated into SoMF. More importantly, SoMF will acquire specialized state-of-the-art instrumentation for mechanical, thermal and structural analysis of materials upon application of external stimuli and during material degradation. The multidisciplinary character of soft matter research at TAMU is apparent from the diversity of departments and colleges listed as the SoMF's Co-PIs. The SoMF facility will fill a significant gap on campus in coordinated research activities related to soft matter and form a nucleus that will foster the interaction between TAMU scientists in this field. This facility will result in numerous cooperative research proposals, improve collaboration with industry and provide international visibility of TAMU research, as well as benefit the education of undergraduate and graduate students. The number of faculty involved in soft matter research has more than doubled at TAMU in the past decade through both junior and senior hires. The SoMF will serve to strengthen this investment in human resources and will serve as a vehicle for retention and growth.