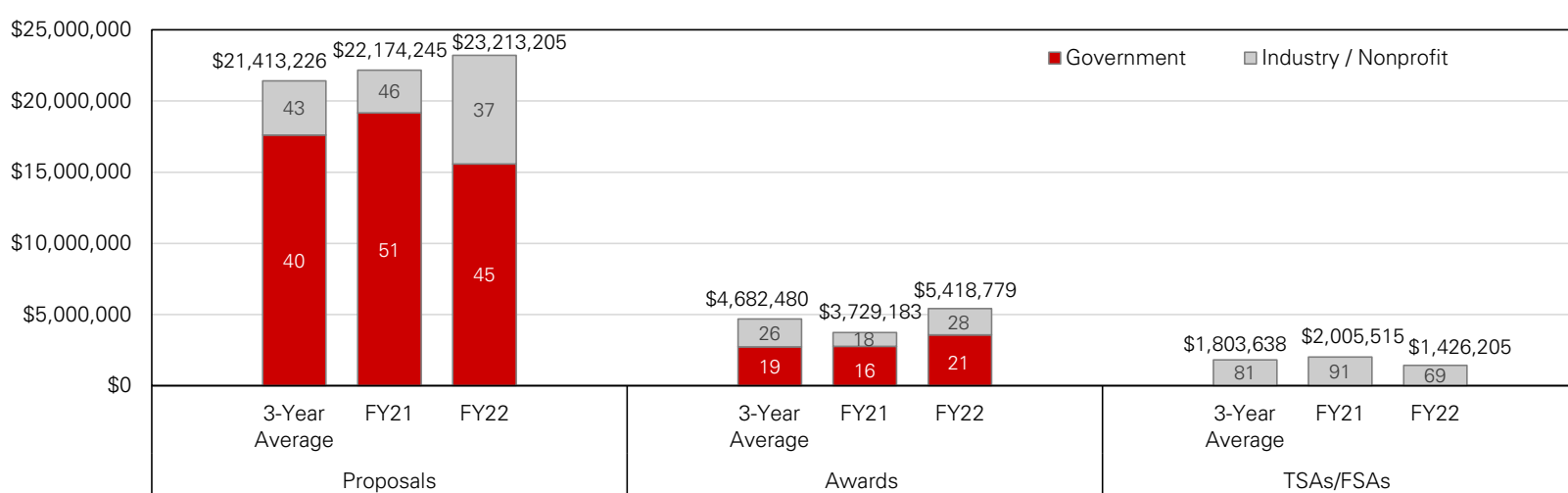


The research programs in the Wilson College of Textiles at NC State University are innovative, life-saving, creative, global and thriving. The college also provides tech service to all stakeholders and supports the economic development of the State and beyond. This newsletter gives a brief overview on the research and tech service activities of the faculty, staff and students during the third quarter of Fiscal Year 2022.

FY22 vs. FY21 vs. Three-Year Average (Q1 - Q3)



NUMBERS TO DATE (FY22 Q3)

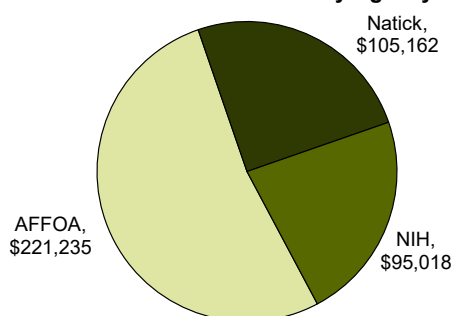
Research Awards Received (\$673,345)

- Federal: \$421,415 | AFFOA, Natick, NIH
- Industry/Nonprofit: \$251,930 | 3DLOOK, Aja Labs Inc., Cotton Inc., Solib Solutions LLC, TNT Development

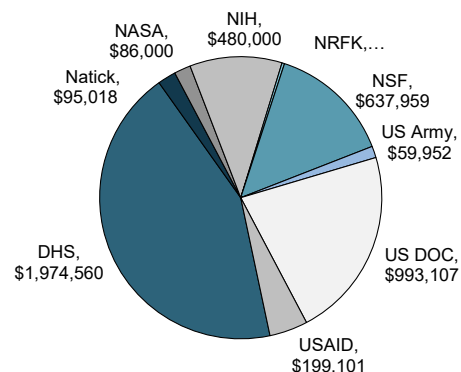
Research Proposals Submitted (\$9,910,104)

- Federal: \$4,539,027 | DHS, Natick, NASA, NIH, NRFK, NSF, US Army, US DOC, USAID
- Industry/Nonprofit: \$5,371,077 | Aja Labs Inc., American Heart Association, Cotton Inc., Duke University, Golden Leaf Foundation, Kanda Industries LLC, Novo Nordisk Foundation, Petroleum Research Fund, Solib Solutions LLC, TNT Development

FY22 Q3 Federal Awards by Agency



FY22 Q3 Federal Proposals by Agency



NUMBERS TO DATE (FY22 Q3) Cont.

Inter-college Research Proposals (4)

- Wilson College share: \$4,749,587
- With CALS, CHASS, COE, COS, The Graduate School

Inter-college Research Awards (1)

- Wilson College share: \$105,162
- With COS

Inter-department/unit Research Proposals (5) \$1,458,380

Inter-department/unit Research Awards (1) \$95,018

Graduate Student Support

- 66 Ph.D. Student RAs (Avg Stipend: \$18,341 / year)
- 17 M.S. Student RAs (Avg Stipend: \$14,328 / year)

RESEARCH AWARDS ABOVE \$50,000 (FY22 Q3)

1. Amanda Myers, Advanced Functional Fabrics of America (AFFOA), \$152,761.
2. Ericka Ford, Aja Labs, Inc., \$125,013.
3. Nelson Vinueza Benitez, Denis Fourches, University of California - San Francisco (National Institutes of Health (NIH)), \$105,162.
4. Emiel Den Hartog, Andre West, Kun Luan, US Army - Soldier Systems Center (Natick), \$95,018.
5. Emiel Den Hartog, Advanced Functional Fabrics of America (AFFOA) (US Army), \$68,474.

RESEARCH HIGHLIGHTS

The Wilson College Research Opportunity Seed Fund (ROSF) targets to promote interdisciplinary, faculty-initiated research projects with potential for extramural support. The following two projects (\$10,000 each) were selected by the College Research Committee for funding in spring 2022.

Composting can convert otherwise unusable textile waste into a valuable agricultural resource--if you compost the right materials. Professors Sonja Salmon and Lori Rothenberg are studying both the chemistry and the adoption of compostability assessment as they develop a new high-throughput method. More efficient and accessible testing will increase the number and types of materials considered suitable for industrial composting as an alternative to landfill disposal.



Per- and polyfluoroalkyl substances (PFAS) are commonly used for repellant textiles. While the large polymeric backbones should not pose significant health risks, the degradation or loss of the fluorinated side-chains through use and exposure to environmental stressors is a significant concern. This is of particular concern for firefighters, whose turnout gear find detectable levels of PFAS as exposure as materials burn, meaning this population is exposed to much higher concentrations for extended periods of time. At a cellular level, PFAS can alter membrane activity and lead to mitochondrial dysfunction, which in turn can lead to an elevated incidence of malignant cancers. In this project, Professors Jessica M. Gluck and R. Bryan Ormond aim to establish a sustainable long-term collaboration between our respective works in cellular biology and textile performance for firefighters to evaluate the unique risk posed by firefighter turnout gear. They believe this will lead to significant work to determine not only how PFAS exposure leads to increased incidences of cancer, but how to leverage that knowledge to develop better, more protective firefighter gear.