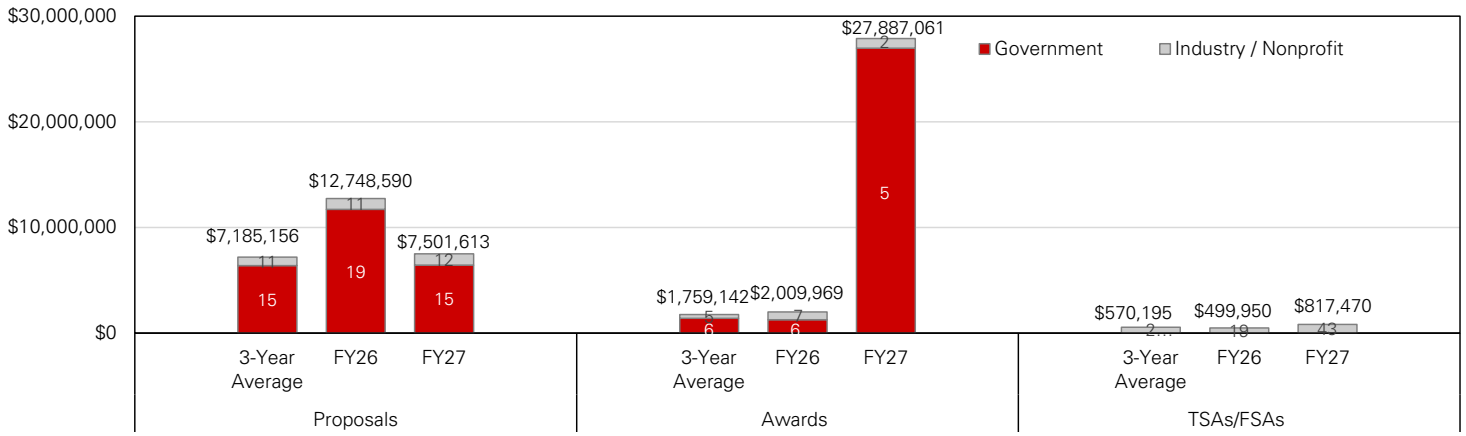
Wilson College of Textiles

Textiles Research Newsletter

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 first quarter of Fiscal Year 2027.

FY27 vs. FY26 vs. Three-Year Average (Q1)



NUMBERS TO DATE (FY27 Q1)

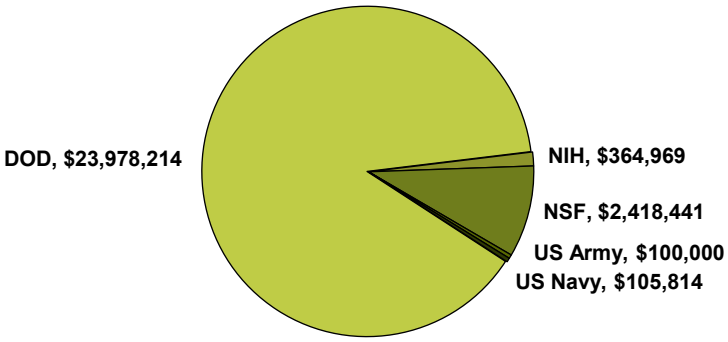
Research Awards Received ($27,887,061)

- Federal: $26,967,438 | DOD, NIH, NSF, US Army, US Navy
- Industry/Nonprofit: $919,623 | Apani Labs, Blueprint Biosecurity

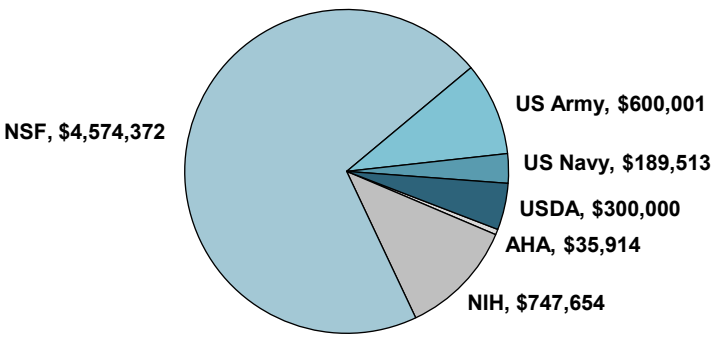
Research Proposals Submitted ($7,501,613)

- Federal: $6,447,454 | AHA, NIH, NSF, US Army, US Navy, USDA
- Industry/Nonprofit: $1,054,159 | Anduril Industries, Cotton Inc., Dreamscape Systems, Maxxon Corporation, Polyolefin Particle Research Institute, Stryker Corporation, Technology Holding, Tecomsys, UL Fire Safety Research Institute, YKK Corporation

FY27 Q1 Federal Awards by Agency



FY27 Q1 Federal Proposals by Agency



NUMBERS TO DATE (FY27 Q1) Cont.

Inter-college Research Awards (1)
- Wilson College share: $750,545 | With COE

Inter-college Research Proposals (1)
- Wilson College share: $60,524 | With PCOM

Inter-dept./unit Research Awards (2) $26,396,655
Inter-dept./unit Research Proposals (4) $2,100,755

Graduate Student Support
- 76 Ph.D. Student RAs (Avg. Stipend: $26,970 / year)
- 16 M.S. Student RAs (Avg. Stipend: $20,645 / year)

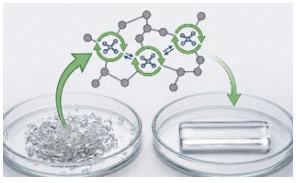
RESEARCH AWARDS AT OR ABOVE $50,000 (FY27 Q1)

1. David Hinks, Melissa Sharp, U.S. Department of Defense, $23,978,214.
2. Andre West, Emiel DenHartog, Ericka Ford, Karen Leonas, Sonja Salmon, Melissa Sharp, Rong Yin, Industrial Commons (National Science Foundation), $2,418,441.
3. Behnam Pourdeyhimi, Hooman Tafreshi, Blueprint Biosecurity, $750,545.
4. Yang Zhang, National Institutes of Health, $364,969.
5. Ericka Ford, Januka Budhathoki Uprety, Ahmed El-Shafei, Apani Labs, $169,078.
6. Confidential Project, $105,814.
7. Marc Mathews, U.S. Army Combat Capabilities DEVCOM Chemical Biological Center, $100,000.

RESEARCH HIGHLIGHTS



Sole Stories: Uncovering Consumer Profile Identities Within Sneaker Culture and Community. Uncovering Consumer Profile Identities Within Sneaker Culture and Community advances our understanding of sneaker culture by examining the diverse identities and behaviors that exist within the broader Sneakerhead community. Building on her pioneering exploration of sneaker culture through the lens of consumer behavior and social identity, Dr. Delisia Matthews' study moves beyond the conventional view of Sneakerheads as a single, homogeneous group. Using model-based clustering, she identifies two distinct consumer segments—Partially Committed Enthusiasts (PCE) and Highly Invested Enthusiasts (HIE)—distinguished by differences in self-esteem, community belongingness, life satisfaction, preferences, and levels of engagement. The findings reveal that while both groups play important roles in shaping sneaker culture, they engage with and experience the Sneakerhead community in distinctly different ways. These insights deepen our understanding of the diversity within sneaker culture while also offering important practical implications for the industry. By uncovering these nuanced consumer profiles, Dr. Matthews' research provides brands with a stronger foundation for developing more effective market segmentation, culturally relevant marketing strategies, and more differentiated brand positioning within the growing global sneaker industry.



Covalent Adaptable Networks: Uniting Thermoset Performance with Thermoplastic Recyclability. Thermoset Resins are widely used across industries like aerospace, automotive, and electronics for their exceptional mechanical strength and creep resistance. However, because traditional thermosets form permanent, cross-linked molecular networks during curing, they cannot be melted or reshaped, making them nearly impossible to recycle and causing millions of tons of composite waste to end up in landfills. To solve this circularity challenge, Dr. Jialong Shen and his research team are investigating Covalent Adaptable Networks (CANs) containing exchangeable dynamic covalent bonds that remain robust and stable at ambient conditions yet undergo reversible exchange reactions at elevated temperatures. This unique behavior allows the resin to be reprocessed, repaired, and recycled like a thermoplastic while retaining the high performance of a traditional thermoset. By engineering these dynamic chemistry pathways, the research aims to pave the way for a new generation of sustainable, high-performance materials that align with circular economy goals without compromising structural integrity.