The research programs in the 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 technology service activities of the faculty, staff and students during the fourth quarter of Fiscal Year 2017. While industry / non-profit awards were down from last year, proposals and government awards were up significantly.

**FY17 vs. FY16 (Q1 - Q4)**

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<th>FY16</th>
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<td>Proposals</td>
<td>39</td>
<td>32</td>
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<td>Awards</td>
<td>17</td>
<td>30</td>
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<tr>
<td>TSAs/FSAs</td>
<td>161</td>
<td>125</td>
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**NUMBERS TO DATE (FY17 Q4)**

**Research Awards Received ($961,859)**
- Federal: $159,614 | DHHS, DHS, NIH, NIJ, NOISH, NSF, USAID
- Industry: $802,245 | Cotton Inc., CRDC, Eastman, Lubrizol, W.L. Gore & Assoc., etc.
- Non-Profit: $0

**Research Proposals Submitted ($2,005,205)**
- Federal: $1,057,131 | DOE, DOS, Navy, NASA, NSF, USSOCOM
- Industry: $948,073 | Eastman, HeiQ Ltd., ITG, MRIGlobal
- Non-Profit: $0

**FY17 Q4 Federal Awards by Agency**
- DHHS, $125,402
- NIH, $30,552
- USAID, $3,660

**FY17 Q4 Federal Proposals by Agency**
- NASA, $228,989
- DOE, $402,508
- NSF, $225,000
- DOS, $130,421
- DOD, $70,213
NUMBERS TO DATE (FY17 Q4) Cont.

Inter-college Research Proposals (4)
• COT share: $648,782
• With CALS, COE, CNR and PCOM

Inter-college Research Proposals (2)
• $228,989

Inter-department Research Awards (2)
• $138,888

Graduate Student Support
• 61 PhD Student RAs (Avg Stipend: $18,378 / year)
• 22 MS Student RAs (Avg Stipend: $14,446 / year)

RESEARCH AWARDS ABOVE $50,000 (FY17 Q4)

1. Roger Barker, $357,819, Eastman Chemical Company
3. Lisa Chapman, $138,888, Lubrizol Corporation (Co-PIs: Harold Freeman, Renzo Shamey)
4. A. Blanton Godfrey, $115,435, UNC-CH (DHHS)

RESEARCH HIGHLIGHTS

The First Ever Non-Stop Tying-In Process trials were recently conducted by Professors Abdel-Fattah M. Seyam and William Oxenham based on their newly developed innovative procedures and prototype equipment that can dramatically reduce or eliminate weaving stop while conducting tying-in. A recent study of the currently practiced tying-in process showed that the loss of production could range from 4% to 6% depending on the warp specifications, weaving machine type and operators’ skill. These new trials revealed that not only the weaving process continued while tying-in but also eliminated several steps and saved considerable amount of wasted warp materials. Almost all weavers will benefit from the non-stop tying-in process. Examples of types of products that require tying-in include shirting, sheeting, denim, towel, air bag and Jacquard fabrics. This research is funded ($574,000) from the Walmart U.S. Manufacturing Innovation Fund with the goal to improve the competitiveness of the U.S. industry.

Carbon Nanotube Foams are being produced and studied in Professor Philip Bradford’s Lab. They are made through layering aligned carbon nanotube sheets. These unique materials are lower density than traditional polymer based foams and high loft nonwoven fabrics. They have the added benefit of high temperature stability (~500 °C in air), electrical conductivity and specific surface area making them interesting for filtration, electrodes for electrochemical devices, pressure sensors and supports for catalytic reactions. This work is funded by Bradford’s Young Investigator Program award from the Air Force Office of Scientific Research.