

2018-2019 Student Awards and Accomplishments

11th year Student Awards and Accomplishments

North Carolina A&T State University

- **Udhab Adhikari** successfully defended his PhD dissertation and completed his PhD (December 2018). He gave a technical poster presentation on his research entitled “Embedding Magnesium Metallic Particles in Polycaprolactone Nanofiber Meshes Improves Applicability for Biomedical Applications” and “Magnesium and Calcium-Containing Scaffolds for Bone Tissue Regeneration” at the 7th Annual COE Graduate Poster Presentation Competition, NC A&T State University. Udhab was lead author on the publication titled “Embedding Magnesium Metallic Particles in Polycaprolactone Nanofiber Meshes Improves Applicability for Biomedical Applications” *Acta Biomaterialia* 2018 (In press, online version is published).
- **Shalil Khanal** successfully defended his PhD dissertation and completed his PhD (August 2019). He gave a poster presentation entitled “Modified alginate hydrogel microsphere for cell encapsulation” at the 7th Annual COE Graduate Poster Presentation Competition 2019. Shalili was first author on the publication titled “Novel Alginate-PLGA Nanofiber Hydrogel Composites for Cell Encapsulation” (Under Revision, Scientific Reviews, 2019). *Shalil was* University-wide NC A&T Three Minutes Thesis Finalist, Sponsored by *Graduate College and Graduate Student Advisory Council (GSAC), NC A&T State University, 2019.*
- **Oreoluwa Alonge** (M.S., 5/2019), successfully defended his MS Thesis (July, 2019). He was recipient of University-wide NC A&T Three Minutes Thesis Semi-Finalist.
- **Kalene Johnson** (M.S., 5/2019), Successfully defended her MS Thesis (July, 2019). She was recipient of Research Mini-Grant for Advisee, 2018-2019 (Advisee-Kalene Johnson), Sponsored by GSAC, NC A&T State University.
- **Ms. Jessica Rawles** Jessica was involved in several research projects as undergraduate research assistant. She was majorly focusing on magnesium alloys microstructure and mechanical testing. Jessica presented her research poster at the NC-LSAMP Annual Undergraduate Research conference and was awarded the first-place in the category of engineering sciences for best presentation in the poster competition. Her paper “Effect of alloying elements concentration and processing parameters on the structural, mechanical and corrosion properties of lightweight magnesium alloys” was accepted for technical publication at ASME IMECE 2019 conference.
- **Mr. Dustin Trujillo**, an army veteran, supported by RVET monies, graduated this year with a BS in Bioengineering and is currently employed at Endura Products in Colfax, NC. Dustin utilized his Computed Tomography and 3D printing skills acquired during his research in his senior design project. His team was awarded 3rd place in a campus wide poster competition and their work resulted in an invention disclosure.
- **Mr. Oluwaseun Adewumi (Seun)** graduated this semester with a master’s degree in Mechanical Engineering. He utilized X-ray Computed Tomography to analyze defects in Additively Manufactured metal objects. He is currently employed at Intel Corporation in Phoenix, AZ.
- **Surabhi Shaji** 2018 ASME International Mechanical Engineering Congress and Exposition (IMECE), NSF Student Poster Competition - Travel Award (\$750), Title: “*Magnetocaloric Properties of Fe₉₀Ta₁₀ Thin Films*”. 8th Annual COE Graduate Poster Presentation Competition-Runner-up (Award - \$350) Title: “*Magnetic and Electrical Properties of Fe₉₀Ta₁₀ Thin Films*” Surabhi Shaji, Nikhil Reddy Mucha, A.K Majumdar, Christian Binek, Dhananjay Kumar
- **Nikhil Reddy Mucha**:_GSAC Mini Grant Winner – 2018-2019 (Award amount - \$ 1000), Title: “*Titanium oxynitride thin films as active layer materials for heterojunction solar cells with high photo conversion efficiency*”

University of Pittsburgh

- **Dr. Jingyao Wu** successfully defended his Doctoral Thesis entitled, “Fundamental studies of ultra-high ductility dual phase Mg-Li based alloys for biodegradable tracheal stent application” and is currently working for McKinsey Consulting in China.
- **Dr. Sudhanshu Shekhar** successfully defended his Doctoral Thesis entitled, “Fundamental study of silicate substituted nanostructured calcium phosphates (NanoSiCaPs) and 3-D scaffolds for non-viral gene delivery” and is currently working as a post-doctoral research associate at University of Oregon, Eugene.
- **Mr. Li-Fu Hwang** successfully completed his Master’s Thesis entitled, “Bio-corrosion studies of biodegradable alloys in the Mg-Y-Sr and Mg-Zn-Sr system”.

University of Cincinnati

- **Dr. John Lynch** obtained a position as scientist at the Food & Drug Administration in Cincinnati, OH
- **Mr. Mike Smith** obtained a position as ORISE fellow at CDC/NIOSH in Cincinnati, OH
- **Ms. Xiaoxian An (UC)** (PhD student mentored by Dr. Pixley) was first co-author (equal participation with Udhav Adhikari) and also gave a poster presentation entitled “Magnesium metal electrospun with polycaprolactone into nanofibrous fabrics has tissue reparative effects in vivo” at the 33rd Annual Ohio Physiological Society Meeting, University of Cincinnati, September 28-29, 2018.
- **Ms. Elizabeth Shelby (UC)**, an undergraduate from Tennessee State Univ., gave a poster presentation to outline her work on a UC Summer Undergraduate Research Fellowship (SURF program) (in Dr. Pixley’s lab). The poster was entitled “Nerve Outgrowth on Magnesium Biomaterial” and given at the SURF Program Poster Session, UC College of Medicine, August, 2018.
- **Ms. Chelsey Braunwart (UC)**, an undergraduate at Defiance College, OH, gave a poster presentation to outline her work on an American Society of Pharmacology and Experimental Therapeutics SURF Fellowship (in Dr. Pixley’s lab). The poster was entitled: “Effects of Mg Ions on Schwann Cells In Vitro” and given at the ASPET SURF Program Poster Session, August, 2018.

Noteworthy Educational and Outreach activities

North Carolina A&T State University

- Team Bhattarai Lab conducted a demonstration "Cotton Candy: A Sweet Inspiration to Learn Biomaterials and Biomedical Engineering" in 2019 NC Science Festival Maker Fair! (Presentation team was lead by undergraduate student Alessa Steward (BS Bioengineering) and graduate students, Shalil Khanal (PhD in Applied Chemistry), Christian Chavis (MS in Bioengineering), Kalene Johnson (MS in Bioengineering) and Sheikh Saudi (PhD in JSNN) (see Figure 1 E for detail).
- One of former REYs participants, Naya Henry joined bioengineering program at NC A&T State University. Naya together with Mr. Washington (RET, from Dudley High) were involved in the study of effect of Ca concentration on the structure and mechanical properties of MgZnCa alloys.
- We participated in the AEOP-URAP internship program, hosting Mr. Sohan Mugi, rising sophomore from Georgia Tech University. Sohan was interested to get hand-on experience in material science and metallurgy. He conducted a study on “Effect of processing parameters on structure and hardness of Mg alloys”.
- **Guilford County Science Fair:** In School Year 2018-19, a female student approached the ERC-RMB to ask for access to CT imaging for a project involving dehydration and rehydration of plants. We performed the imaging and the student competed in several rounds of competition.

- **Guilford County Schools:** Served as Science Fair Judge and as a panel reviewer for Middle school science groups presenting their work on Bioengineering projects
- **NCAT ERC-RMB:** Lab Tours were conducted for internal and external groups

University of Pittsburgh

During Year 11, University of Pittsburgh and SLC graduate students continue to push the STEM-related outreach activities. This includes outreach to enable undergraduate students, Ms. Nicole Trinh and Khue Huynh participate in 3D printing of novel biodegradable polymer-metal scaffolds and development of bioinks for bioprinting of novel constructs for stem cell differentiation. At the same time, the students engaged in the development of novel biosensor platforms for rapid detection of blood based biomarkers using only few drops of blood. The two minority students spent the summer of 2019 completing these two projects. Both graduate students and senior research faculty mentored these students during the summer. Another undergraduate student, Nick Tondravi also worked during the fall and spring semester as well over the summer gaining experience in the diffusion bonding approach to generating 3D constructs of novel biodegradable magnesium alloys.

University of Cincinnati

- In support of the C2C supplemental project, we hosted 4 students from Ireland, summer, 2018. They toured UC, NCAT and Pitt. At UC, they toured the Pixley lab, Nanoworld and the labs of Drs. Shanov and Schulz and gave and received talks.
- As the UC site coordinator for diversity, education and outreach, Sarah Pixley organized two outreach events at Mt. Healthy Jr/Sr high school.
- **Student Support.** Partially supported MET Co-op students (4) summer 2019 to work on sustainability efforts
- **SLC.** UC SLC graduate students participated in STEM-related outreach activities led by Dr. Sarah Pixley. This includes outreach to local elementary school students.