AMRI NEWSLETTER

Advanced Materials Research Institute

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THE DIRECTOR'S CORNER

The fall semester has surely proven productive for AMRI undergraduates and graduate students! Several articles in our newsletter showcase various accomplishments of AMRI students including a series of awards at the highly attended annual *Innovate*UNO event; here, various honors were obtained by undergraduates Cynthiya Shrestha (Smith), and Alana Dixon (Poltavets) and graduate students Naeyma Islam (Rick), Michael Shabetai (Poltavets), and Md. Shahid Khan (Wiley). Also noteworthy is Treva Brown's recognition by the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) with their annual graduate student leadership award; Treva recently completed her doctorate and is now employed as a Research Scientist in the Naval Research Laboratory at Stennis Space Center.

Additionally, in this quarter, we have been gearing up for the AMRI annual review, to be held the Thursday before Mardi Gras and our summer research program. There will be more to report on these events in our next newsletter.

--***John B. Wiley***

AMRI Represents at Annual InnovateUNO 2017

An expanded version of *Innovate*UNO was held at the UNO Earl K. Long library on November 1 and 2, 2017. The event was organized and sponsored by the UNO Center for Undergraduate Research. Although typically focusing on undergraduate students, this year's event was expanded to include all students, faculty and staff at UNO. The program has been ongoing for 5 years now, and includes a competition for various programs. This event was the perfect opportunity for UNO students to develop presentation skills and display their research in a public setting. Projects that involve research and scholarly or creative work were included. AMRI affiliated students performed quite well at the event. Cynthiya Shrestha, a mechanical engineering student that works with Dr. Damon Smith received 1st place in the undergraduate oral presentation category. In the poster category, both undergraduate (UG) and graduate (G) students won awards including Alana Dixon (UG, Poltavets), Naeyma Islam (G, Rick), Michael Shabetai (G, Poltavets), and Md. Shahid Khan (G, Wiley).

For more information on the event, view these links:

http://www.uno.edu/research/StudentResearch/InnovateUNO.aspx

http://www.uno.edu/campus-news/2017/Innovate_UNO_2017_Highlights_Student_Research_Creativity_and_Scholarly_Work.aspx

Drs. Poltavets and Prevost Join Family STEM Night in St. John the Baptist Parish

St. John the Baptist Parish School District organized a Family STEM Program on November 9 and 16, 2017. The district recruited community leaders from local scientific industry and educational groups in an effort to highlight the study of science and mathematics and demonstrate how it can benefit students' academic careers. Dr. Viktor Poltavets and Dr. Richard Prevost participated from UNO at both events. They presented demonstrations on memory metal alloys, thermoelectrics, and superconducting materials for St. John the Baptist students and their families. Many students living in St. John parish are academically at risk and financially underrepresented. 200-300 students and their families were expected to attend each event, so these types of demonstrations by community leaders and educators represent a positive effort by the parish to promote science, engineering, and mathematics and improve the quality of life for its residents.

Dr. Richard Prevost freezes a balloon for students to show relationship amongst temperature, pressure, and volume.

Microwave Processing allows for Accelerated Synthesis

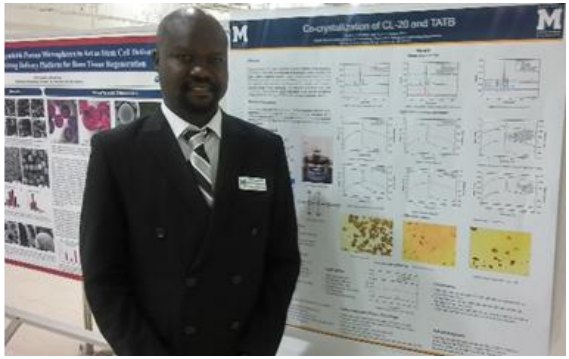
The research of UNO graduate student, Sara Akbarian-Tefaghi, was highlighted in a recent press release by UNO. Sara developed a microwave synthesis method for the rapid processing of various bulk materials as well as in the rapid production and surface modification of perovskite nanosheets. The method is quite significant in that it greatly decreases the time needed for synthesis. The work culminated in a publication within *ChemNanoMat,* a new journal now indexed in *Web of Science*. Dr. Akbarian-Tefaghi stated in the UNO interview, "When I started this research back in 2013, we did not have high hopes in exploiting microwaves in the treatment processes of perovskites, but it worked perfectly— it was exceptionally fast with comparable quality."

You can access the University of New Orleans article through the link:

http://www.uno.edu/campusnews/2017/University-of-New-Orleans-Researchers-Recognized-for-Success-of-Microwave-Technique-in-Preparing-Layered-Nanomaterials.aspx

Where are They Now

Christopher Lomatayo (Summer Outreach 2007 REU Participant). During the summer of 2007, Christopher Lomatayo collaborated with AMRI as an Outreach Program participant from the South Dakota School of Mines Technology. He developed his own research project in physics under the mentorship of Dr. Kevin Stokes. Following the summer program, his studies continued in South Dakota and he eventually received his BS degree in Chemical Engineering in 2010. In 2012, Lomatayo took an overseas position as a process engineer in the oil and gas industry, where he worked until his return to the U.S. in 2014. Soon after his return, he went back to his Alma Mater to do graduate work towards a MS degree in Chemical Engineering. His research work included an Army Research Office (ARO) sponsored project conducting research on the co-crystallization of energetic materials via a solvent/antisolvent method and mechano-chemical synthesis as a viable option for co-crystallization. His research project was conducted under the supervision of Dr. Lori Groven. Currently, Chris is working as a Plant Engineer for Preferred Sands of Genoa, a sand processing company specializing in the production of custom made sand for industrial and recreational markets in Genoa, Nebraska.



Christopher Lomatayo, Summer 2007 REU Participant

AMRI on Facebook!

Check out the latest AMRI updates on social media. Announcements are posted weekly providing information regarding upcoming events, research group meetings, and awards and acknowledgements of AMRI students and faculty. Navigate to the link below and click the *Facebook* box/link for follow if you want to receive updates in your *Facebook* notifications list.

https://www.facebook.com/AMRI.University.New.Orleans

Survey

For those of you that have not yet had time to do so, we would appreciate your input and insights as a current or former member of AMRI. The survey should only take a few minutes to complete and at the end of the survey, you can include information that you would like to appear in the next newsletter – we would very much enjoy hearing from you.

Access the survey at:

https://neworleans.co1.qualtrics.com/jfe/form/SV_0MUWaN72QmXa0o5.

Congratulations to Treva Brown

Treva Brown, a Graduate Assistant working in Dr. John Wiley's research group, recently traveled to Minneapolis, MN to attend the 44th Annual Conference of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE). Treva was pleasantly surprised to receive an award for leadership and significant contributions to science in the community. Treva received her Ph.D. this Fall semester and accepted a new position with the Naval Research Laboratory at Stennis Space Center.

Recent Publications

Clare Davis-Wheeler Chin, Sara Akbarian-Tefaghi, Juana Reconco-Ramirez, and John Wiley, "Rapid Microwave Synthesis and Optical Activity of Highly Crystalline Platinum Nanocubes," *MRS Commun.* **2018**, *8*, 71-78.

Akbarian-Tefaghi, S., Rostamzadeh, T., Brown, T.T., Davis-Wheeler, C., and Wiley, J. B. "Rapid Exfoliation and Surface Tailoring of Perovskite Nanosheets via Microwave-Assisted Reactions," *ChemNanoMat,* **2017**, *3*, 8, 538-550.

S. Akbarian-Tefaghi and J. B. Wiley, Microwave-Assisted Routes for Rapid and Efficient Modification of Layered Perovskites," *Dalton Trans.* **2018**, *47*, 2917-2924. (invited).

Taha Rostamzadeh, Md Shahidul Islam Khan, Kyle Riche', Yuri M. Lvov, Anna V. Stavitskaya, and John B. Wiley, "Rapid and Controlled In-Situ Growth of Noble Metal Nanostructures within Halloysite Clay Nanotubes," Langmuir, 2017, 33, 13051–13059.

Taha Rostamzadeh, Kyle Riché, Sara Akbarian-Tefaghi, Treva T. Brown, and John B. Wiley, "Formation of Molybdate Organic-Hybrids and Exfoliated Molybdate Nanosheets," *FlatChem*, 2017, 5, 9-17. DOI: 10.1016/j.flatc.2017.08.005.

Zhi Zheng, Michael Retana, Xiaobing Hu, Ramona Luna, Yumi H. Ikuhara, and Weilie Zhou, "Three-Dimensional Cobalt Phosphide Nanowire Arrays as Negative Electrode Material for Flexible Solid-State Asymmetric Supercapacitors," *ACS Applied Materials &Interfaces,*2017, 9,16,986-16,994. DOI: 10.1021/acsami.7b01109.

Recent Presentations

John Wiley. "Topochemical Reaction Strategies or Modification of Layered Oxides," Argonne National Laboratories, Chemical Sciences and Engineering (CSE) Division Colloquium Series, Dec. 5, 2017 (Invited talk, hosted by Dr. Jack Vaughey).

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http://www.unoalumni.com/cos-giving

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