AMRI NEWSLETTER

*Advanced Materials Research Institute*

**Volume 14, Issue 3** **http://www.uno.edu/amri** **Sept 2016**

## THE DIRECTOR'S CORNER

Greetings. The summer was especially productive in AMRI. We successfully completed our summer research program, made significant progress on the building renovations, and welcomed our two new hires. As highlighted below, the summer program gave each of the students a positive research experience and some of the participants will be coauthors on publications or presentations at national meetings. This program represented the 14th year of our undergraduate program and the 15th year of our high school program. So far, AMRI has hosted a total of 155 undergraduates and 144 high school students over these various summers. We have a pending grant to NSF to continue our undergraduate research program and are initiating a funding drive this next month to support our high school program.

As far as renovations, all air handling units have been installed and they are currently finishing the installation of thermostats and updated ductwork throughout the building. The temperature control is already much better in that we are no longer suffering through refrigerated classrooms and "steam bath" like labs. Almost all the hoods have been installed and they are all currently being plumbed and powered. The new blower units are installed on the roof and we are excited at the prospect of modern fume hoods throughout key AMRI labs. The roof turned out to be quite a complicated undertaking, but appears to be almost complete. We are hoping that we can now put away buckets and remove plastic tarps from key instrumentation. We look forward to the next heavy rain as a test of the new roof. In addition to thanking all the AMRI staff and students for their patience and efforts to deal with random leaks, I also want to give a big thanks to Ron O'Rourke (UNO) and Daniel Hanks (contractor) for all their hard work, effective communication, and efforts to keep on top of major issues as they arose – without these two individuals and their support staff, these renovations could have been a total nightmare.

The new AMRI faculty, Viktor Poltavets (Chemistry) and Damon Smith (Mechanical Engineering), are quickly setting up their labs. Viktor's labs are on the second and third floors of the Chemical Sciences Building and Damon's are in AMRI northwest corner of second floor. They both expect to be running routine experiments by sometime in the spring.

Please mark your calendars. The next annual AMRI review will take place on Thursday, February 23, 2017 in the University Center, Innsbruck rooms A & B. This is the Thursday before Mardi Gras break.

*--John Wiley*

## *Congratulations to Matt Tarr for Appointment to Eurofins Professorship*

Dr. Matthew Tarr was recently appointed to the Eurofins Professorship in Analytical Chemistry on September 23, 2016. Dr. Tarr will develop new areas of research interest in collaboration with Eurofins laboratories at the UNO Research and Technology Park.

Development could include new analytical techniques and methodology related to trace micronutrients and industrial contaminants in the human food supply, human food allergens, proteins and lipids analytical chemistry of food products, and the adulteration and animal speciation of food products.

## *STEM Scholars Camp Tour of AMRI Sciences Facilities*

On Monday, August 8, 2016, as part of the UNO Sciences Facilities tour, AMRI hosted a group of about 28 STEM Scholars Camp participants, all science freshman, on a tour of the AMRI Facilities. The tour was in two areas of our research: the Thin-Films Laboratory, and the Electron Microscopy Laboratories. The STEM participants were shown the equipment in our laboratories and were given a brief description of what each equipment does, how it is used, and how it fits into our research programs. Three of our graduate assistants assisted with the tour: Rahmat Eskandari (thin films); Shuke Yan (SEM – scanning electron microscopy; and Zhi Zheng (TEM –transmission electron microscopy).

Also assisting with the tour were some of the students of Dr. Wendy Schluchter, Chair of the Department of Biological Sciences, and a Coordinator of the UNO STEM Scholars Camp. After the tour of AMRI Facilities, Dr. Schluchter, mentioned our AMRI summer research program for high school students and undergraduates, and the College of Sciences COSURP program. She also encouraged the tour participants to consider applying for these programs in the near future.

## *AMRI Participates in Mars Rover Exhibit*

AMRI took part as an exhibitor alongside the Physics Department at the “Journey to Mars at UNO” event. The event was held September 22-24, 2016 and hosted over 1,500 local area students in grades 6-12 and undergraduate students, as well as the general public. The Mars Rover Curiosity was displayed as a half scale model and many tables had interactive STEM activities to stimulate interest in the sciences and supplement the viewing. The Curiosity is one of two models in the world and this event was the first showing in Louisiana.

**AMRI graduate students show off materials science models and properties with local New Orleans high school students.**

**Half scale model of Mars Rover Curiosity displayed for the first time in Louisiana.**

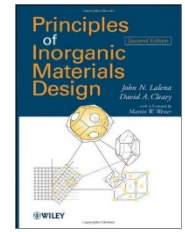
## *Survey Says…*

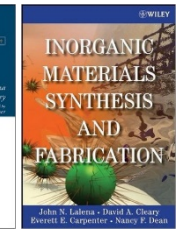
Many thanks to those of you that were able to complete the AMRI survey. This survey has provided valuable information about AMRI alumni, especially giving us insight into where their careers have taken them. This is important not only in terms of keeping track of our former institute members, but also can help with advising current graduate students and postdocs in terms of career decisions and in looking for opportunities in job placement, providing information for grant applications, and in the development of future collaborations, especially those involving industrial contacts. Of the respondents, by far most (> 90%) were either former graduate students or postdoctoral fellows in the institute. Others were faculty associates that worked or are presently working with AMRI faculty. Groups not well represented in the survey were former high school students, high school teachers and undergraduates that participated in our various research programs. We hope to do better in getting their input.

For those of you that have not yet had time to do so, we would appreciate your input. The survey will only take a few minutes (less than 5 minutes). Also, 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. You can access the survey at: http://neworleans.co1.qualtrics.com/jfe/form/SV_0MUWaN72QmXa0o5.

## *Where are They Now?*

**Dr. John "Nick" Lalena (GS w/ Wiley 1995-1999).** I have worked for over 25 years (in post-doctoral and pre-doctoral positions), primarily in the semiconductor and electronic materials manufacturing sector. This experience has come in various roles, including: chemical analyst, process and product engineer, and research & development scientist. I have served as an adjunct and visiting professor of chemistry at various four-year colleges and universities and have authored two MS&E textbooks, one now in its second edition. Currently, I am providing technical and administrative support to the senior technical advisor at the U. S. Department of Energy for the wide band gap semiconductor programs.




**Dr. Thomas Kodenkandath (PD w/ Wiley and O'Connor, 1998-2000).** Since leaving AMRI, I served as the PI for more than five DoD, DoE and ARPAe projects covering materials and their processing for energy generation, storage and transmission technologies that fetched more than 7 patents and 12 more patent applications. One of the products that helped to develop, the light-weight flexible solar cells, was selected as one of the "Best Inventions of 2011" by TIME Magazine. During this time, I also flourished as a cartoonist with three of my cartoons appearing on CNN TV, many of them in other print medias, won the Science Idol cartoon contest by Union of Concerned Scientists (2007), Won the International Poster Competition to celebrate 2011 as the year of

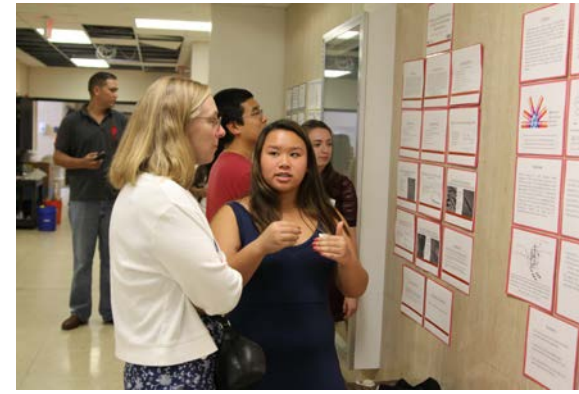
chemistry, won the Kerala State (India) Award for editorial cartooning (2012) and also the 2016 Distinguished Alumni Award of Indian Institute of Technology (IIT) in the category of “Excellence in Other Walks of Life" based on my credentials as a cartoonist.

**Prof. Amin Yourdkhani (GS w/ Caruntu, 2009-2012).**  After a prestigious postdoctoral appointment (Marie Curie Fellowship) at CNR Parma Italy, Dr. Yourdkhani became an Assistant Professor in Materials Engineering in 2013 at Tarbiat Modares University, Tehran, Iran. Dr. Yourdkhani sends his best and says “hi to all AMRI staff at the time when I was a graduate student.”

## *2016 AMRI/Chemistry Summer Outreach Research Program*

The 2016 AMRI/Chemistry Summer Outreach Research Program that was held from May 31 through July 29, 2016 came to a close with the annual barbecue and poster session. The student participants presented their research activities as a poster session display and answered questions from their mentors and other interested parties (see following series of images for highlights).

This outreach research program has taken place every summer since 2002, when it began as a program for high school students and teachers. The purpose of the program is to increase interest and understanding of scientific research among undergraduates, high school students and teachers. No prior research experience is required for participation.



## *Save the Date!*

It is not too early to mark the Annual AMRI Mardi Gras Review on your 2017 calendars. Once a year AMRI faculty, researchers, and graduate students gather on the Thursday, February 23, 2017, before Mardi Gras to present summaries of their research results and information on current programs available. AMRI is beginning to plan for this event, and the office will send out a formal announcement in the beginning of the new year.

## *New Faces at AMRI*

***Taha Rostamzadeh*** joined Dr. John Wiley's research group as a Postdoctoral Researcher. He will be involved in the synthesis and characterization of nanomaterials including nanoparticles, nanosheets, nanoscrolls, and nanopeapods. His work will be supported by a grant from the National Science Foundation.

## *Recent Publications*

S. Yan, S. C. Rai, Z. Zheng, F. Alqarni, M. Bhatt, M. A. Retana, and W. Zhou, "Piezophototronic Effect Enhanced UV/Visible Photodetector Based on ZnO/ZnSe Heterostructure Core/Shell Nanowire Array and Its Self-Powered Performance," ***Adv. Electron. Mater.*** 2016, DOI: 10.1002/aelm.201600242.

## *Sincere Thanks*

We would like to sincerely thank **Dr. Satish Rai** for his recent generous financial donation to AMRI. Such donations are quite important to AMRI where this funding can be used to support important programs within the institute including high school student and teacher summer research, graduate travel to national conferences, printing costs for important publications, AMRI upkeep (instrumentation repairs, etc.), seminars, and other AMRI events. Satish is currently working in the Chicago area for Cabot Microelectronics as a Research and Development CMP Engineer. The second image shows Satish while he was still a graduate student here in AMRI, demonstrating SEM to some Girl Scouts as part of an important STEM program.

*Would you like to help support important AMRI programs and research?*

Consider making a donation to the AMRI UNO Foundation account.

To donate, simply click on the link:
Https://www.unoalumni.com/cos-giving

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--a publication of the

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