



# NEWSLETTER



Advanced Materials Research Institute

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<http://www.uno.edu/amri>

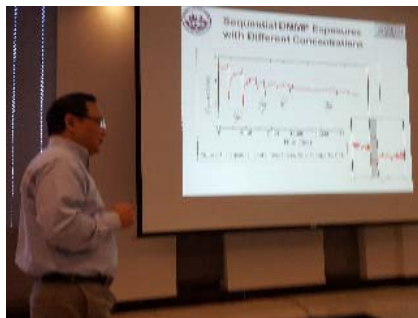
Mar 2017

## THE DIRECTOR'S CORNER

Greetings! This last quarter has gone well. We successfully completed our annual review and have been working to complete the application process for the summer research program for undergraduates and high school students. Further, we have started to plan for AMRI's 20<sup>th</sup> anniversary – we have not set the date yet, but expect it to be on or around Feb 8<sup>th</sup>, the Thursday before Mardi Gras. As far as renovations go, they again appear to be complete, the final few minor roof leaks have been fixed and the air handling systems are working to maintain pleasant temperatures throughout AMRI. – *John Wiley*

## AMRI Annual Review

AMRI recently hosted its annual review on February 23, 2017 in the Innsbruck Suite of UNO's University Center. Faculty and students summarized their research efforts from 2016. The program began with continental breakfast and an overview of the institute by Dr. John Wiley, the Director of AMRI and President's Research Professor of Chemistry. Several presentations given by AMRI faculty followed, including AMRI's newest members, Prof. Viktor Poltavets and Prof. Damon Smith. The topics covered nanomaterials research such as the use of nanostructured materials to fabricate sensors, assembly of nanopeapod structures, and product properties through



**Prof. Weilie Zhou discussing various sensor arrays developed in his group**

coupling between spin crossover and ferroic phases. Invited speaker, Prof. Niel Crews, Director of IfM, also spoke highlighting some of the ongoing projects at LaTech. These research efforts were sponsored by the LA Board of Regents, the National Science Foundation, and the Defense Threat Reduction Agency. The day concluded with a poster session where graduate and undergraduate students presented posters that showcased all their hard work.



**AMRI review poster session**

## **Annual Chemistry Barbecue**

The Chemistry Department held its annual Spring Barbecue and Poster Competition on March 31<sup>st</sup>. The event was well attended by students, faculty and staff. This year's poster awardees included several students working in AMRI. The awards include:

**Senior Graduate 1st (tie):** Sara Akbarian (Wiley group) and Treva Brown (Wiley group)

**Senior Graduate 2nd:** Shuke Yan (Zhou group)

**Junior Graduate 1<sup>st</sup>:** Jumanah Hamdi (Trudell Group)

**Junior Graduate 2nd (tie):** Alexis Blanco (Wiley Group) and Madhurima Das (Trudell group)



**Spring Chemistry poster competition**

**Undergraduate 1<sup>st</sup>:**

Mina Hibino (Tarr Group)

**Undergraduate 2<sup>nd</sup>:**

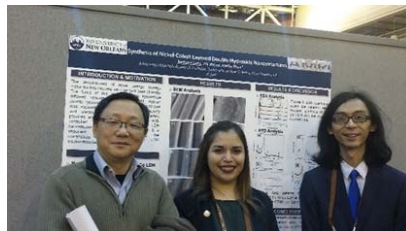
Tony Tran (Wiley Group)

**"People's Choice"  
Best Poster Award:**  
Treva Brown (Wiley group)

## **Summer Outreach Program Participant Travels on Behalf of AMRI and UNO**

Ramona Luna recently represented AMRI and UNO at the American Physical Society's March Meeting held from March 13-17, 2017 in New Orleans, LA. Ramona was a participant in the 2016 AMRI Summer Research Program. She displayed a poster detailing her research while working with Prof. Weilie Zhou and graduate student, Zhi Zheng, at AMRI. The title of the poster was "Synthesis of Nickel-Cobalt Layered Double Hydroxide Nano-structures." Our 2017 summer research program will begin soon on

May 30<sup>th</sup> and will bring in high school and undergraduate students to participate in AMRI nanomaterials research. Many former participants have traveled and presented research results or have been included in research journal publications on behalf of AMRI.



**Prof. Weilie Zhou, Ramona Luna (REU student summer 2016), and doctoral student Zhi Zheng (left to right) at recent APS meeting.**

## **Local High School Students Visit AMRI Laboratories and Meet with Graduate Students**

Students from the local high school, Arch Bishop Chapelle, visited the laboratories of AMRI on Thursday, March 23, 2017. This was a STEM focused visit organized by high school science teacher, Dr. Andrew Hermann. Dr. Hermann received his B.S. from the University of New Orleans in 2009 and worked with AMRI Director Dr. John Wiley's research group; he then went on to get a Ph.D. in Chemistry from North Carolina State University. Wiley led a tour of the facilities which included research labs as well as thin films, magnetics, and microscopy. Graduate student Shahid Khan demonstrated the TEM. Afterwards, the students (all female) met with two female chemistry graduate students, Sara Akbarian and Treva Brown, to gain insight on what it is like to study chemistry at the graduate level and to discuss careers for women in the sciences.



**Students from Arch Bishop Chapelle visit electron microscope laboratory at AMRI**

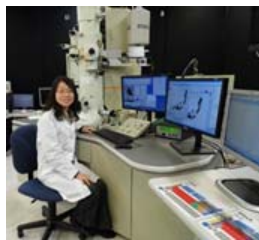


**Group Picture of Students from Arch Bishop Chapelle**

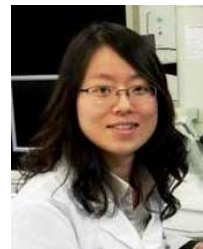
### ***Where are They Now?***

Jin Hee Lim (Ph.D. 2011) worked as a doctoral student in both AMRI and Chemistry. She conducted research under the supervision of Dr. John Wiley from 2007-2011. Her work focused on the synthesis and characterization of nanomaterials using template based electrodeposition methods. After graduation in Aug. 2011, Dr. Lim joined the US Food and Drug Administration/Office of Regulatory Affairs/AR Regional Laboratory as a postdoctoral ORISE fellow and developed methods to detect and characterize nanomaterials in FDA regulated products. In the meantime, she completed the FDA regulatory science training courses at the University of AR for Medical Sciences and learned about government regulations, laws, and risk assessment. Currently, she participates in multi-disciplinary research projects as a staff fellow-research chemist. She enjoys working as

part of a team where a common goal exists and members support each other. Another activity unrelated to research that she enjoys is volunteering her services as a Korean-English letter translation for Compassion International (non-profit organization). Dr. Lim writes, "by translating letters written by sponsored children at Compassion International, I am very happy that I can help someone. Also I am impressed with the positive thinking of sponsored child[ren]." Congratulations to Dr. Jin Hee Lim on her excellent work so far in her career.



**Dr. Jin Hee Lim, USDA, Arkansas Regional Laboratory**



### ***Special Thanks***



**Brad Dodrill**



We would like to sincerely thank Lake Shore Cryotronics Inc. and Senior Scientist Brad Dodrill for their generous donation to AMRI. Their financial support will be used to cover the costs of our fundamental studies in magnetics. The cost of helium continues to increase (currently ~\$11/liter) and the donated funds will help offset some of these costs. Professor Spinu, the leader of our magnetics program, has been working with Lake Shore and Brad for many years; both are experts in magnetism and the use of first-order reversal curves (FORC) in the characterization of magnetic materials.

## Survey

For those of you that have not yet had time to do so, we would appreciate your input. The survey should only take a few 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](http://neworleans.co1.qualtrics.com/jfe/form/SV_0MUWaN72QmXa0o5).

## New Faces at AMRI

**Simon Thuillier** joins Dr. John Wiley's research group as a Visiting Scholar Intern. Simon is an undergraduate student from the University Institute of Technology (IUT) of Poitiers, France. He will study the synthesis of new double-layered perovskites of the Dion-Jacobson family and their characterization using x-ray powder diffraction.

## Recent Publications

Rahmatollah Eskandari, Xiaodong Zhang, Leszek Malkinski, "Polarization-Dependent Photovoltaic Effect in Ferroelectric-Semiconductor System", Appl. Phys. Lett., 110, 121105, 2017.

M. R. VanGordon, G. Gyawali, S.R. Rick, and S. R. Rempe, "Atomistic study of intramolecular interactions in the closed-state channelrhodopsin chimera, C1C2," Biophysical Journal, vol. 112, page 943, 2017.

## Recent Presentations

Rahmatollah Eskandari, Leszek Malkinski, "Photovoltaic Enhancement with Ferroelectric HfO<sub>2</sub> Embedded in the Structure of Solar Cells", APS March Meeting, 13-17 March, 2017, New Orleans, USA.

"Synthesis and Characterization of Quantum Dot@Hexaniobate Nanocomposites," Kayla R. Moore, Treva T. Brown and John B. Wiley\* 253rd National American Chemical Society Meeting, March 2017 San Francisco, CA. (Kayla participated in the AMRI summer program in 2015.)

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## AMRI NEWSLETTER

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