



NEWSLETTER

Advanced Materials Research Institute



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THE DIRECTOR'S CORNER

The quarter was a productive time for us. We had our Mardi Gras review, celebrating our 20th anniversary. Also, we hosted a tour of members of the GNO-AMP program. It is hoped that this relationship will help further the development of AMRI. With the addition of Advano in April 2017, we now have a small, steady revenue stream that is helping to off-set minor expenses in AMRI's day-to-day operations. Expansion of Advano as well as the addition of other companies to AMRI will greatly strengthen our efforts to maintain and advance our programs.

--John B. Wiley

AMRI Hosts the 20th Annual Mardi Gras Review

Following AMRI annual tradition, professors, graduate students and researchers gathered on February 8, 2018, the Thursday before Mardi Gras, at the Innsbruck Suite of the University Center. The review marked the 20th year anniversary that AMRI has organized the event, and Dr. John Wiley, Director of AMRI, kicked off the program with an overview of AMRI activities for 2017. Presentations by Dr. Damon Smith, Dr. Leonard Spinu, Dr. Leszek Malkinski, Dr. Viktor Poltavets, and Dr. Weilie Zhou followed, including a variety of Materials Science topics ranging from nanopeapods to 3D printing of nanocomposites. The

program also featured invited guest speakers, Dr. Jack Vaughey from Argonne National Labs, who spoke about next generation energy storage, and Dr. Shiva Adireddy from Advano, a new, start-up company utilizing space and equipment from AMRI laboratories, who spoke about improved capacity in lithium ion batteries. The review successfully concluded with an afternoon poster session where AMRI graduate students displayed their current research efforts.



Graduate Research Assistant, Anamika Poduval, points out details of her research at the afternoon poster session.



Dr. John Wiley and Dr. Viktor Poltavets enjoy their time at the Annual Mardi Gras Review.

GNO-AMP Organization Tours AMRI Laboratories and Facilities

The Greater New Orleans Advanced Manufacturing Partnership (GNO-AMP, theneworleans100.com/business/2017/02/20/gno-is-amped), a part of GNO Inc. (gnoinc.org/about-us/) economic development alliance, visited AMRI on January 30, 2018. Dr. John Wiley guided the visitors on a tour of the AMRI Laboratories and Advano. GNO-AMP consists of local members from industry and academics in the greater New Orleans area. The partnership focuses on three areas, advanced manufacturing, value-added manufacturing and maker's spaces. The visitors toured the thin films, microscopy, clean room, magnetics, dilution refrigerator, and additive manufacturing laboratories. The group was especially interested in talking with Alex Girau, President

and CEO of Advano, the start-up located in AMRI. Alex highlighted Advano's program in the development of new anode materials for use in rechargeable batteries.

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.

AMRI Represents UNO at the Spring National ACS Meeting

This year the 255th American Chemical Society National Meeting and Exposition took place in our own downtown New Orleans. The conference was held at the Convention Center from March 18-22. Many AMRI faculty and students attended the meeting and gave talks and poster presentations. Dr. Viktor Poltavets chaired the session on Solid State Chemistry.

New Faces at AMRI

Bastien Bergmann, Malaurie Giraudier, Lise Chapolon, Valentin LeBoeuf, Emeric Miguet, and Etienne Connet recently joined AMRI and Chemistry Department as visiting Chemistry Interns from France from the University of Poitiers and the University of Bourgogne. They will be conducting research in various laboratories and gaining experience for the completion of their Masters Degrees.

AMRI Awarded \$2000 from Ceramic and Glass Industry Foundation

AMRI received a small grant, Summer High School Research Experience," to support a high school student this coming summer. The funds will be used to help cover a high school student participant stipend. The Ceramic and Glass Industry Foundation (CGIF) was established in 2014 by the American Ceramic Society. Its mission is to "help industry attract and train the highest quality talent available to work with engineered systems and products that utilize

ceramic and glass materials." For more information on this foundation, please check out their website:

<https://foundation.ceramics.org/about/>

Recent Publications

"Rapid Microwave Synthesis and Optical Activity of Highly Crystalline Platinum Nanocubes," Clare Davis-Wheeler Chin, Sara Akbarian-Tefaghi, Juana Reconco-Ramirez, and John Wiley* MRS Commun. 2018, 8, 71-78. <http://doi.org/10.1557/mrc.2017.137>

"Microwave-Assisted Routes for Rapid and Efficient Modification of Layered Perovskites," S. Akbarian-Tefaghi and J. B. Wiley* Dalton Trans. 2018, 47, 2917 – 2924. DOI: 10.1039/c7dt03865h. (invited, Frontier article).

Recent Presentations

Rapid microwave synthesis of organically-grafted layered perovskites and exfoliated nanosheets. S. Akbarian-Tefaghi, A. Poduval, E. Teixeira Veiga, G. Amand, J.B. Wiley S. Akbarian-Tefaghi, A. Poduval, E. T. Veiga, G. Amand, P. Renquet, T. Rostamzadeh, T. T. Brown, C. D.-W. Chin, and J. B. Wiley, 255th National ACS Meeting, New Orleans, LA, March 18-22, 2018. (Sci-Mix Poster and Talk)

Platinum@hexaniobate nanopeapods: Sensitized composite architectures for photocatalytic hydrogen evolution under visible light irradiation. C. Davis-Wheeler Chin, P.R. Fontenot, R.H. Schmehl, J.B. Wiley, 255th National ACS Meeting, New Orleans, LA, March 18-22, 2018. (Poster)

Topochemical synthesis and characterization of transition metal-fluoride double-layered perovskites, (MF)LnNb₂O₇ (M = Mn, Fe, Cu; Ln

= La, Pr). P. Maji, M. Granier, D. Montasserasadi, J.B. Wiley, 255th National ACS Meeting, New Orleans, LA, March 18-22, 2018. (Poster)

Nano-mechanical and physical investigations of novel oxide nanocomposites using atomic force microscopy. T.T. Brown, S. Akbarian-Tefaghi, A. Blanco, Z.L. Highland, N. Kuruppu Arachchige, A.M. Taylor, J.C. Garno, J.B. Wiley, 255th National ACS Meeting, New Orleans, LA, March 18-22, 2018. (Poster)

Microwave synthesis of nanocomposites via the capture of preformed nanoparticles within scrolled nanosheets. A. Blanco, T. Rostamzadeh, J.B. Wiley, 255th National ACS Meeting, New Orleans, LA, March 18-22, 2018. (Poster)

Growth of gold and palladium nanoparticles inside and outside of halloysite nanotubes. M. Islam Khan, T. Rostamzadeh, J.B. Wiley, 255th National ACS Meeting, New Orleans, LA, March 18-22, 2018. (Poster)

Synthesis of inorganic-organic perovskite hybrid materials via a microwave assisted method. A. Poduval, S. Akbarian-Tefaghi, J.B. Wiley, 255th National ACS Meeting, New Orleans, LA, March 18-22, 2018. (Poster, chosen for Sci-Mix)

Palladium nanoparticle halloysite nanocomposites. Synthesis, characterization and catalytic activity. J. Hamdi, A. Blanco, J.B. Wiley, M.L. Trudell, 255th National ACS Meeting, New Orleans, LA, March 18-22, 2018. (Poster)

Borides and carbaborides as transition-metal-free intercalation cathodes with redox active anions. Poltavets, Viktor; Shabetai, Michael; Do, Janelle 255th National ACS Meeting, New Orleans, LA, March 18-22, 2018. (talk)

Borides and carbaborides based intercalation cathodes with redox active anions. Shabetai, Michael; Do, Janelle; Poltavets, Viktor, 255th National ACS Meeting, New Orleans, LA, March 18-22, 2018. (Poster).

Two step syntheses of NiFe-P nanosheets as electrode materials for supercapacitors," Johnson, Zhivon; Luo, Jinling; Zheng, Zhi; Zhou, WL.

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

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