

ENERGY AND PHOTON SCIENCES DIRECTORATE NEWSLETTER

JULY 13, 2021

Volume 2, Issue 3

MEET OUR NEW COLLEAGUES

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Lily De Luca, NSLS-II
Michael Dilgen, NSLS-II
Shiyu Fan, NSLS-II
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James Hawkes, NSLS-II
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Jake Kaminsky, NSLS-II
Taehun Kim, NSLS-II
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Sizhan Liu, IS
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Kimberly McGuire, DC
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Evgeniya Vorontsova, NSLS-II
Xiaogang Yang, NSLS-II
Estella Yee, NSLS-II
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Students

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Gia Carnignan, CO
Nyesa Enakaya, CO
Xiaouri Liu, IS
Jason Loprete, IS
Xinyun Lu, IS
Sheik Mohiuddin, IS
Christopher Sims, PM
Joshua Steier, IS
John Whittall, IS
Ketsia Zinga, NC

A MESSAGE FROM JIM

This is our third quarterly newsletter of 2021, and it has been almost a year and a half since the COVID-19 pandemic caused a shutdown of the Lab with the subsequent development of a Resumption of Operations Plan (ROOP). We are still in Phase 2 of the ROOP but the widespread availability of vaccines from a variety of manufacturers has made the path to a post-COVID world very realistic. When the pandemic was first identified, I do not think many of us imagined that we would be where we are now.

This newsletter is coming out at the tail end of the Independence Day weekend and, with the dramatically falling infection rate, the wide availability of vaccines and the recommendation for new levels of opening in society by the Centers for Disease Control, Independence Day has a particular immediacy to us as a community. The price of this freedom from many of the strictures of the past 17 months is vigilance---abiding by restrictions still in place. Of particular importance is following the science which clearly shows the power of vaccination in the prevention of COVID-19 and its many variants.

We can take some lessons with us from the past year. We do not have to travel as much for effective meetings, seminars, and reviews. We developed some levels of expertise in communication through remote platforms such as Zoom, Teams, BlueJeans and even SpatialChat. We learned how to be productive and run experiments remotely. We also recognize the profound loss from a death in our families and local communities and the national and international community. Finally, we recognize the loss of precious time with our loved ones - both with the aged and the milestones of the young.

BNL is on the path to the reopening of the BNL Child Development Center (CDC)! Kudos to the Jack Anderson-led team that lobbied for changes to the business model at DOE to enable a CDC that can be financially stable. This was one of the biggest findings coming out of the CultureIQ survey. To no one's surprise, the loss of the CDC was one of the biggest factors cited for things that need improvement at BNL. Even if we do not have childcare-age children we, as a community, value having this resource available for our colleagues.

Mental health issues can affect any of us and can be exacerbated when isolated from families and colleagues. BNL provides mental health resources. As discussed in a [recent Monday Memo](#), you can talk about stress, work, family issues, and other concerns with Magellan EAP Counselling Services. You can choose from a national network of licensed professionals. This benefit is provided at no cost to you and your household members. You can get up to five pre-paid counseling sessions. It is confidential and provided by a third party. You can meet with a counselor face-to-face or often via video conference. Contact Magellan Healthcare's counselling services at (800) 327-2182 or visit the [Magellan Ascend website](#).

“The price of this freedom from many of the strictures of the past 17 months is vigilance--abiding by restrictions still in place--and following the science that has shown unequivocally the power of vaccination”



Jim Misewich

Keeping Up with Science

Professor Geraldine Richmond was nominated by President Biden to be the Undersecretary for Science and Energy at DOE. In this role, and pending approval by Congress, Professor Richmond will oversee both the Office of Science and DOE's Applied R&D programs. Her scientific work has involved the study of complex surfaces, using both experimental and computational techniques, particularly focusing on water surfaces. She won the National Medal of Science in 2013.

Professor Richmond became a member of DOE's Basic Energy Sciences Advisory Committee (BESAC) in 1995 and was Chair from 1998 to 2003. She spent seven years as a member of DOE's Hydrogen and Fuel Cell Technical Advisory Committee and was Chair of the SLAC Science Advisory Committee for two years. She became President of AAAS in 2015, a three-year presidential line engagement, followed by the same for Sigma Xi, The Scientific Research Honor Society.

In 1997, Professor Richmond founded the Committee on the Advancement of Women Chemists (COACH) upon realizing that mid-career women chemists were not being recognized in the same way as their male counterparts. COACH has since become a broadly based organization to "ensure that all who seek careers in science and engineering have an equal opportunity to achieve their career aspirations and become leaders and role models for the next generation of scientists and engineers to come" (from the COACH vision statement).

Professor Richmond, known to many of us as Geri, is no stranger to BNL. Sponsored by BWIS, she led virtual workshops this past March on mentoring and on negotiations. These were the latest in Geri Richmond-led workshops, starting with a two-day workshop held in Port Jefferson and in-person workshops on mentoring. Those of you who attended any of these workshops will appreciate Geri's engagement and enthusiasm for advancing the role of all who do science in its many forms and her approachability.

From the EPSD IDE Council

The EPSD [Peer Counselors](#) are members of the Inclusion, Diversity and Equity (IDE) Council and welcome conversations about any workplace concerns with EPSD employees and guests. Be assured that confidentiality is an utmost priority within the constraints of the law and Lab policy. We have a process for [anonymous messages](#) to the IDE Council and ALD on the IDE website.

BNL employees are required to have one IDE goal on their performance appraisal goalsetting document. To help, we have a web page with [suggested goals](#). Any goal that you find compelling and is related to I&D is acceptable if your supervisor agrees; creativity in the current environment is particularly needed.

The EPSD has spent a lot of time developing an enhanced hiring process for science and technology hires with an aim towards improving the diversity of our staff. If anyone has any particular concerns and issues, they are

welcome to communicate those to the IDE Council members.

In 2021

This is the third EPSD Newsletter of 2021. When we began this year, the IDE Council and Jim asked if you would let us know where your priorities lie for the IDE Council programs and whether you have suggestions going forward. You can email Jim or any member of the Council directly or you can put it in the [anonymous messages](#) suggestion box found on the [IDE web page](#). We are interested both in programs we can pilot (e.g., IDE performance goals, welcoming letters) and programs where we can provide support (e.g., International Woman's Day Program). Of particular interest are programs that take advantage of the electronic tools that we have used for the past nine to ten months. We have all learned valuable new skills and challenged our creativity; taking advantage of these lessons may be the good that comes out of a very difficult, often heartbreaking time. Please remember that any idea is worth considering. The IDE Council will respond to all ideas, either directly if you choose to sign your email or on the "Ask Jim" page to anonymous communications.

Food Services at BNL

We now have food trucks coming on site daily. You can find the information (including online pre-ordering when available) on the [Guest Services Division website, Food Services](#). Menus are listed on the web page and pre-orders are possible for some of the food trucks. The web page also lists places that will deliver food and groceries to BNL.

Recommended Readings and Videos

The UN-designated Women's Day is March 8. In recognition, Brookhaven Women in Science organized two workshops and co-organized, "Girl Power in STEM: *Choose to Challenge!*", a yearly symposium now in its 7th year. The first workshop "*Mentoring for Success and Innovation*" was facilitated by Professor Geraldine Richmond, and the second workshop "*Are you up to the challenge? Influence the change!*" was presented by Maryann Billington, Action | Leadership Group LLC, on a pro-bona basis. The symposium "Girl Power in STEM: *Choose to Challenge!*" was organized virtually and hosted by the University of New Haven (<https://iwdgirlpowerinstem.com>). Dr. Assunta Vigliante, Sirius X-ray Solution, addressed the path from academia to industry and Professor Pamela McCauley from North Carolina State University talked on the benefits of supporting women in STEM and innovation. The event was announced on the DOE event pages; 85 participants, including guests from India and Ireland, attended the event which, besides the two lectures, included a panel discussion with women professionals and students. For those who could not attend electronically and for those who wish to watch a second time, we are providing the links for the program "[Girl Power in STEM-Choose to Challenge!](#)" This event was made possible by the generous contributions of the EPSD, the NSLS-II Director and the CFN Users Executive Committee.

This past February, we celebrated Black History Month 2021. The African American Advancement Group (AAAG) hosted a reading of [Martin Luther King Jr.'s "I Have a Dream"](#) speech to mark this occasion. During this live event, shared via videoconference, Lab employees recited passages from this iconic speech by one of America's most impactful civil rights leaders.

A current article in APS News (May 2021) [A Black Life in Physics By George Campbell Jr.](#) provides a personal history from a pre-eminent black physicist. It is all the more important to read and reflect with Juneteenth finally becoming a federal holiday.

Keep up with Science at EPSD and BNL

The Annual NSLS-II/CFN Users' meeting occurred remotely on May 17-20, 2021. It was a resounding success. We would like to congratulate the Chasman Award winners Micaela Duncan and Maria Stepaniak. If you were not one of the 1100+ participants, you can read [about it in our next issue.](#)

Instrumentation at BNL

In this quarterly newsletter, we highlight an instrument and a beamline in EPSD. Acquisition of the instrument was initiated by the EPSD Working Group to address concerns about the agility and responsiveness expressed in the CultureIQ survey. The second item highlights what the NSLS-II does so well - design beamlines!

A modern directorate technical shop is in development at NSLS-II and a computer numerical control (CNC) mill and lathe will be part of it. A CNC machine is automated and can be programmed to do simple or complex tasks. The machines can operate in three modes: 1) Manual, 2) Conversational, and 3) CNC. The manual mode functions like a traditional machine and is best suited for quick or simple jobs. The conversational mode has built-in functions that eliminate complex setups and time-consuming positioning. Examples of this are drill/bore/tap, positioning, pocketing, and engraving. The last mode is CNC mode which generally requires computer-aided design (CAD) and computer-aided manufacturing (CAM) software. Parts are designed in CAD and CAM and tell the machine what to do. Using this mode, if a part is not suitable, can easily be reworked or remade. The new capability will reduce wait times of parts, inspire a different way of thinking and lead to better Science.

Next, let's get to know the [XFM beam line](#) at the NSLS-II. The X-ray fluorescence Microprobe, XFM beamline 4-BM, is a hard X-ray microprobe that is used for micro-imaging, micro-spectroscopy and microdiffraction. XFM has a spot size that is tunable down to 2 microns (a human hair is about 70 microns in diameter) and an energy range for spectroscopy from light elements like sulfur to heavy elements like molybdenum and uranium. Much of the work at XFM focuses on the microchemistry of earth science materials such as rocks, soils, and plants, but XFM also has users in materials and battery science, animal cells, and space materials.

Beamline scientists Ryan Tappero and Sarah Nicholas have been collaborating with a group from the University of Sheffield to measure [Chernobyl disaster analog](#)

[materials](#). The Chernobyl disaster produced large amounts of dangerous and persistent radioactive waste made of melted steel, concrete, and nuclear fuel. Sheffield University Professor Claire Corkhill and her group made tiny samples of a synthetic analog of the [lava-like waste](#) for study at the XFM beamline. Use of the XFM microprobe on the tiny samples allowed the Corkhill group to safely study the chemistry of these materials in detail. These characterizations allow researchers studying nuclear waste in the environment to model the reactivity and predict the chemical behavior of this radioactive waste into the future. It is especially important to understand the chemical state of uranium in these samples because its ability to move around into air and water is controlled by its chemistry; for details, see Ding, H., Dixon Wilkins, M.C., Gausse, C., Mottram, L.M., Sun, S., Stennett, M.C., Grolimund, D., Tappero, R., Nicholas, S., Hyatt, N.C., Corkhill, C.L. (2021), "Safely probing the chemistry of Chernobyl nuclear fuel using micro-focus X-ray analysis", *Journal of Materials Chemistry A* 9:12612–12622, doi: 10.1039/d0ta09131f.

From the Working Group

The results of the 2019 Engagement Survey have been extensive and have led to the development of a multi-year plan to make sustained improvements across the Lab. Claudine Cangiano joined BNL in the role of Organizational Change Management Specialist to guide those improvements. The EPSD Working Group is in regular contact with Claudine to discuss our recommendations.

The EPSD has hosted three EPSD Coffee Breaks and Poster sessions using the SpatialChat platform. The initial coffee break hosted three posters and the second and third sessions hosted four posters. These sessions will continue periodically to explore new collaborations and to help foster a feeling of inclusion during these somewhat isolated times.

The Working Group discussed all of your more than 800 comments in the CultureIQ survey and made a series of recommendations. "Bring back the Daycare Center" was a major call, and BNL has listened (see Jim's comments). The recommendations for the EPSD with actions taken are:

Recommendation: Highlight spotlight winners.

Status: Winners highlighted in April and October newsletters. As soon as COVID allows, the award winners will be introduced at a directorate celebration.

Recommendation: Start a newsletter, minimum of quarterly.

Status: This is the fifth newsletter.

Recommendation: Have directorate-wide coffee hours to promote communication between personnel with a focus on the younger hires.

Status: Three have been held so far (see above).

Recommendation: Provide more resources for the staff of the Photon Sciences Division in the form of additional Research Associates (RAs).

Status: Three RAs have been hired.

Recommendation: Provide funds for a new milling/lathe instrument.

Status: The instrument will be part of a new directorate technical shop at NSLS-II with access for all of EPSD (see section on new instrumentation in this newsletter).

On the Move in EPSD

Dr. Alex Harris has agreed to take the Energy Sciences Director role on a regular basis. Alex will manage the ES Department comprised of the Center for Functional Nanomaterials, the Chemistry Division, and the Condensed Matter Physics and Materials Science Division. As Jim wrote to the EPSD, “I welcome Alex to his role as regular ES Director which he is already handling ably as interim.” He will continue as Acting Chair of Chemistry for the current time.



Please welcome the following BNL staff members who have recently transferred to EPSD:

James Grandy, Vacuum Technical Supervisor, NSLS-II
David Livotti, Staff Electrical Engineer, NSLS-II
Ariana Manglaviti, Sr. Public Affairs Rep, CFN
Wei Xu, Scientific Associate II/I, NSLS-II

Help us Welcome our New Colleagues to EPSD:

Once again, we are introducing our newly hired colleagues to you. If you find common interests or places where you can assist, please do. Join me in welcoming them to the Directorate:

Corey Bidegain, Sr. Tech. Specialist/Tech Assoc. II Mechanical

Supervisor: Bob Scheuerer
Email: cbidegain@bnl.gov
Start Date: 5/24/2021

Megan Brewer, Business Development Coordinator

Supervisor: Andrea Wund
Email: mbrewer@bnl.gov
Start Date: 4/5/2021



Preferred Pronoun: She/Her

Interests: I enjoy spending quality time with family and friends. My two little girls keep us on our toes; we enjoy bike rides, walks, parks and going to the beach. I also enjoy reading, movies, gardening, and photography.

Lily De Luca, Project Engineer

Supervisor: Steven Hulbert
Email: ldeluca@bnl.gov
Start Date: 4/26/2021



Preferred Pronoun: She/Her

Interests: I enjoy hiking, long distance running, playing guitar and writing songs.

Michael Dilgen, Utility Technician, TW-3

Supervisor: Richard Iaccarino
Email: mdilgen@bnl.gov
Start Date: 5/17/2021

Shiyu Fan, Research Associate, Quantum Materials

Supervisor: Jonathan Pellicari
Email: sfan1@vols.utk.edu
Start Date: 6/28/2021

Jianyu Guan, Research Associate, Oxide Molecular Beam Epitaxy

Supervisor: Ivan Bozovic
Email: jyguanww@outlook.com
Start Date: 6/14/2021

Jake Kaminsky, Scientific Associate Cryo-EM

Supervisor: Ligu Wang
Email: jkaminsky@bnl.gov
Start Date: 5/24/2021

Haoyue Guo, Research Associate, Chemistry

Supervisor: Ping Liu
Email: Haoyue.guo@stonybrook.edu
Start Date: 7/6/2021

Jake Hawkes, Project Engineer

Supervisor: Steven Hulbert
Email: jhawkes@bnl.gov
Start Date: 4/26/2021



Preferred Pronoun: Him/He

Interests: Skiing, sailing, coaching Little League baseball games and renovating our 1880 home in Blue Point, NY.

Taehun Kim, Research Associate, Physics

Supervisor: Valentina Bisogni
Email: kthwind91@gmail.com
Start Date: 6/21/2021

Preferred Pronoun: He/Him

Interests: Condensed matter physics, magnetism in transition metal oxides using neutrons and x-rays.

Lacy Jones, Operations Engineer

Supervisor: Teresa Daniels
Email: ljones2@bnl.gov
Start Date: 6/7/2021



Preferred Pronoun: She/Her

Interests: Traveling, learning new things and trying new activities with my family. I have been known to frequent coffee shops, participate in youth STEM outreach and coach basketball for my kids' teams.

Marton Kalman Lajer, Research Associate, Condensed Matter Theory

Supervisors: Robert Konik/Alexei Tsvetik
Email: lajerm@caesar.elte.hu
Start Date: 7/19/2021

Shannon Lee, Research Associate, Materials Science

Supervisor: Qiang Li
Email: slee1@bnl.gov
Start Date: 5/17/2021



Preferred Pronoun: She/Her

Sizhan Liu, Research Associate, Energy Storage

Supervisor: Feng Wang
Email: sliu3@bnl.gov
Start Date: 4/26/2021

Kristina Martinez, Research Associate, Chemistry

Supervisor: Javier Concepcion

Email: kmartinez@bnl.gov

Start Date: 5/3/2021

Juan Marulanda, Research Associate, Computational Science

Supervisor: Daniel Allan

Email: jmaruland@bnl.gov

Start Date: 6/7/2021

Preferred Pronoun: He/Him

Kimberly McGuire, Assistant Director for Operations

Supervisor: James Misewich

Email: kmcguire@bnl.gov

Start Date: 6/1/2021

Preferred Pronoun: She/Her

Fanchen Meng, Research Associate, Materials Science

Supervisor: Deyu Lu

Email: fmeng1@bnl.gov

Start Date: 5/10/2021

Yuxiang Peng, Research Associate, ElectroChemistry

Supervisor: Kotaro Sasaki

Email: ypeng@bnl.gov

Start Date: 6/1/2021

Preferred Pronoun: He/Him

Interests: I am interested in the electrochemical study in water, ionic liquid or molten salt.



Muhammad Mominur Rahman, Research Associate, Chemistry

Supervisor: Xiao-Qing Yang

Email: mrahman1@vt.edu

Start Date: 6/21/2021

Laura Rotundo, Research Associate, Chemistry

Supervisor: Javier Concepcion

Email: lrotundo@bnl.gov

Start Date: 4/26/2021

Robert Schaffer, Controls Engineer

Supervisor: Anton Derbenev

Email: rschaffer@bnl.gov

Start Date: 6/14/2021

Kevin Smith, Research Associate, Theoretical Quantum Information Science

Supervisor: James Misewich

Email: kcsmith3@uw.edu

Start Date: 7/5/2021

Preferred Pronoun: He/Him

Interests: I enjoy cooking, reading, board games, hiking/camping, trying new restaurants and collecting vinyl records. I am also a big basketball fan and enjoy both playing and watching the NBA.



Chavis Stackhouse, Assistant Scientist/Materials Scientist

Supervisor: Amy Marschilok

Email: chavisas@gmail.com

Start Date: 7/6/2021

Evgeniya Vorontsova, Research Associate, Computational Science

Supervisor: Dmitri Gavrilov

Email: vorontsovaea@gmail.com

Start Date: 7/19/2021

Xiaogang Yang, Data Scientist

Supervisor: Stuart Campbell

Email: xiaogang.yang@desy.de

Start Date: 6/14/2021

Preferred Pronoun: He/Him

Interests: I enjoy running, swimming, playing soccer, tennis, and table tennis.



Estella Yee, Research Associate, Biophysics

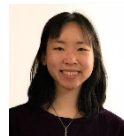
Supervisor: Lin Yang

Email: eyee@bnl.gov

Start Date: 6/1/2021

Preferred Pronoun: She/Her

Interests: Rock climbing, swing dancing, ice skating and hiking.



He Zhao, Research Associate, Physics

Supervisor: Abhay Narayan

Email: hzhao@bnl.gov

Start Date: 4/5/2021

Students:

Marie Bozor, GEM Fellow

Supervisor: Jim Wishart

Email: mbozor@bnl.gov

Start Date: 6/1/2021

Gia Carignan, Chemistry Student Assistant

Supervisor: Peter Khalifah

Email: gcarignan@bnl.gov

Start Date: 6/14/2021

Preferred Pronoun: She/Her

Nyesa Enakaya, GEM Fellow

Supervisor: Jose Rodriguez

Email: nenakaya@bnl.gov

Start Date: 6/1/2021

Preferred Pronoun: She/Her

Interests: Yoga and running.

Xiaorui Liu, Student Assistant

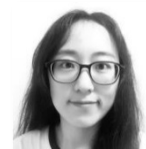
Supervisor: Robert Lofaro

Email: xliu@bnl.gov

Start Date: 5/24/2021

Preferred Pronoun: She/Her

Interests: Cyberphysical security of power systems



Jason Loprete, Student Assistant

Supervisor: Thomas Butcher

Email: jloprete@bnl.gov

Start Date: 6/7/2021

Xinyun Lu, Student Assistant

Supervisor: Robert Lofaro

Email: xlu@bnl.gov

Start Date: 5/24/2021

Sheik Mohiuddin, Student Assistant

Supervisor: Robert Lofaro
Email: smohiuddi@bnl.gov
Start Date: 5/24/2021

Christopher Sims, GEM Fellow

Supervisor: Peter Johnson
Email: csims@bnl.gov
Start Date: 6/1/2021

Joshua Steier, Student Assistant

Supervisor: Meng Yue
Email: jsteier@bnl.gov
Start Date: 4/5/2021
Preferred Pronoun: He/Him
Interests: Hiking, running, and reading.

John Whitall, Student Assistant

Supervisor: Robert Lofaro
Email: jwhitall@bnl.gov
Start Date: 5/24/2021
Preferred Pronoun: He/Him



Interests: I love watching Kurzgesagt videos, playing guitar, and playing sports such as soccer, basketball, tennis, and surfing. I speak Spanish and Swedish.

Ketsia Zinga, GEM Fellow

Supervisor: Oleg Gang
Email: kzinga1@bnl.gov
Start Date: 5/24/2021



Members of the EPS IDE Council (clockwise from top): Diane Cabelli, Michael Cowell, Kenneth Evans-Lutterodt, Betsy Hanson, Grace Webster, John Tranquada, Jing Tao and Vivian Stojanoff



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