



# INSPIRE



# May

# 2024

# INSPIRE

Interdisciplinary

Network *for the*

Synchrotron:

Promoting,

Innovation

Research, and

Enrichment

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## FOREWORD BY THE DIRECTOR



## FOREWORD BY THE DIRECTOR

### PROF. INGRID PICKERING

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Welcome to this issue of the **INSPIRE** newsletter. The NSERC CREATE to **INSPIRE** is a federally-funded training program associated with the Canadian Light Source (CLS) synchrotron.

One of the best aspects of **INSPIRE** is our diversity, as reflected in these pages. I value the variety of research conducted by our Fellows, and appreciate that we can connect with students, faculty and CLS staff who are working across a range of disciplines, as we can read in the range of outputs and topics in this edition. Our Fellows come from many backgrounds and origins, from across the world to right here in Saskatoon. Through our workshops, and in particular in our mentorship circles as highlighted in this newsletter, we benefit from this diversity by learning from each other and helping each other grow. One example is the article

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by Dr. Valerie Schoepfer - Bridging Science and Community - describing Valerie's experiences which encourages the rest of us to take the time to communicate with others in a shared language.

**INSPIRE** is a microcosm of the larger synchrotron community, where many types of researchers are attracted by the opportunities that a synchrotron facility such as the CLS provides. We are strengthened by the diversity of researchers that collaborate to address the important questions. The theme of Collaboration was addressed in our 2<sup>nd</sup> Annual Workshop.

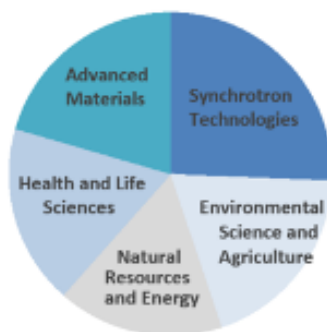
It is my pleasure to thank the creative energy of Dr. Ardalan Hayatifar for this newsletter edition, along with Joseph Stitsky, Linda Vogt and Samira Khoz. I appreciate Program Coordinator Lenore West for her continued contributions to all aspects of **INSPIRE**.

Please enjoy!

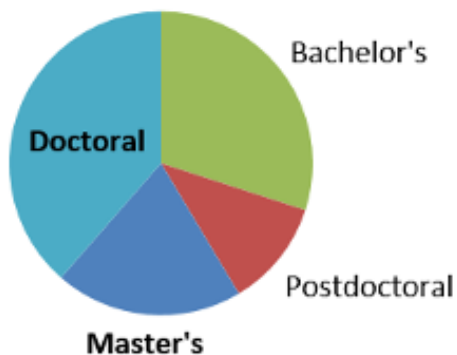
## WHO WE ARE

The interdisciplinary value of **INSPIRE** comes through in the diversity of research categories being investigated by the **INSPIRE** Fellows, with many Fellows covering more than one category. We are pleased to see the even representation over all research areas proposed in the grant.

INSPIRE Fellow Research Categories



INSPIRE Trainee Population (n=70)

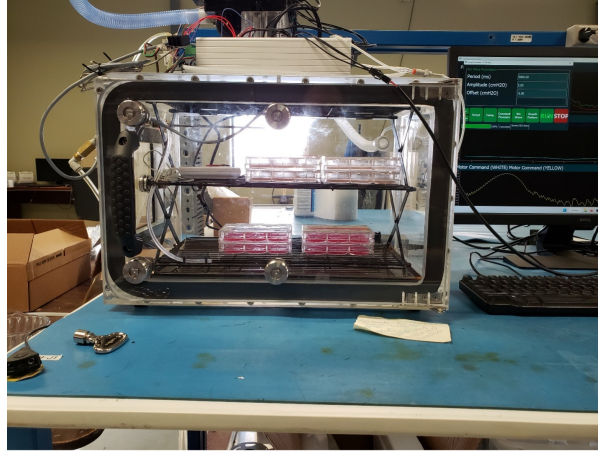


## INSPIRE Alumni

### Where are INSPIRE Fellows now

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#### Amanda Zimmerling



Developed by One Health Medical Technologies, the early prototype of the ventilated incubator was used to cause stimulus mimicking breathing conditions including airflow and pressure changes to determine how this stimulus affected the cell behavior of 3D bioprinted respiratory tissue.

I have accepted a job as a Biomedical Engineer in Training with RMD Engineering, a research, design and manufacturing Engineering firm located in Saskatoon. There, I will be working on building my engineering technical skills while also pushing forward biomedical engineering projects such as a ventilated cell incubator.

I recently spent 5 months in Berlin, Germany at the Technical University of Berlin, learning more about respiratory tissue engineering. There, I worked with the Kurreck lab in developing bioprinted 3D models for respiratory infections and therapeutic testing. Along with learning so much related to my Ph.D., I also had the opportunity to travel and visit many surrounding countries during my term abroad.

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## Lucas Korol



Lucas on his wedding day

It feels great to have finally graduated! I was able to learn so much throughout the years that have helped me grow into the individual I am today. I was fortunate enough that I got to be a part of the INSPIRE program during my studies, not only because it taught me about synchrotron science, but it has helped me to develop the professional skills I needed to be successful in my profession today.

Currently, I am working at Siemens EDA as an Applications Engineer for the Solido Design Environment product line, where I spend most of my day on calls helping out designers from some of the top semiconductor companies in the world. I really enjoy my job, but more importantly, I really enjoy the people I work with. I had a great time at during my studies, but I was ready to move on, and I couldn't be happier with where I am at today.

## Mentorship Circles

### Empowering **INSPIRE** fellows through collaborative learning and professional guidance

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Mentorship Circles meet once per month. There are 3 circles with trainees, supervisors and staff chosen to be diverse in discipline, technique and gender. They provide an opportunity to expand student connections with support advice for academic, professional concerns and personal. A mentorship circle is a nurturing environment where all inspired fellows can come together to share their academic experiences from the past month and discuss their plans for the upcoming month. It serves as a platform for exchanging ideas, strategies, and personal growth stories, fostering a collaborative and supportive community. Additionally, this circle offers a safe space for members to open up about personal life challenges and receive encouragement and advice from peers. This supportive network aims to enhance both professional and personal development, strengthening bonds among fellows.

### Experiences

“ Participating in mentor circles has been instrumental in not only refining my communication skills but also in fostering meaningful connections with fellow participants. Through these interactions, I have had the opportunity to hone my proficiency in both speaking and listening, especially in my second language. Moreover, engaging in mentor circles has deepened my understanding of the **INSPIRE** plan and program, significantly enriching my knowledge base.

Upon my arrival in Canada, these mentor circles proved invaluable in helping me expand my social network. Lenore has been an exceptional mentor, consistently providing attentive listening and invaluable guidance. Her support has been instrumental in my journey, and I am truly grateful.

*Sona Kamali*

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“ One thing that I’ve really enjoyed about the **INSPIRE** program so far are the **INSPIRE** mentorship circles. I like how they encourage us to celebrate successes in our research projects while also offering the potential for outside of the box solutions to our challenges. ”

*Joseph Stitsky*

“ I really like being part of the **INSPIRE** program cause it’s not just about academics but it’s a holistic experience that helps on a personal as well as professional growth. What I like most is how mentorship circle sharpened my communication skills and providing a platform to build in networks ”

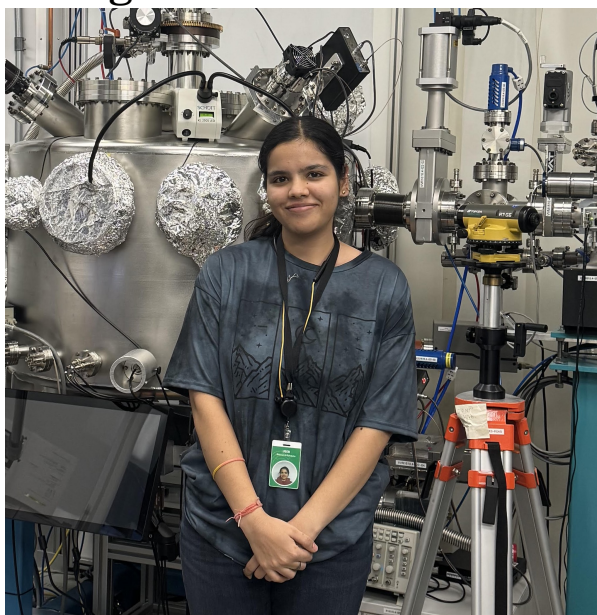
*Sakshi*

## Welcome to **INSPIRE!**

### New Fellows

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## Meemansha Bahuguna



Advisors: Robert Green

I am Meemansha, a first-year Ph.D. student at the University of Saskatchewan's Department of Physics and Engineering Physics. My research focuses on advanced technologies utilizing quantum materials, with access to synchrotron techniques as a REIXS user at the CLS. Originally from India, I completed my undergraduate studies in physics in 2017 and attained my master's degree in physics in 2022 from the University of Delhi, specializing in nanophysics. My master's thesis explored ZnO/Graphene nanocomposites for gas sensors. Now, I am interested and excited about this opportunity of working under expertise within the dynamic environment of Canadian light source research.

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## Sona Kamali

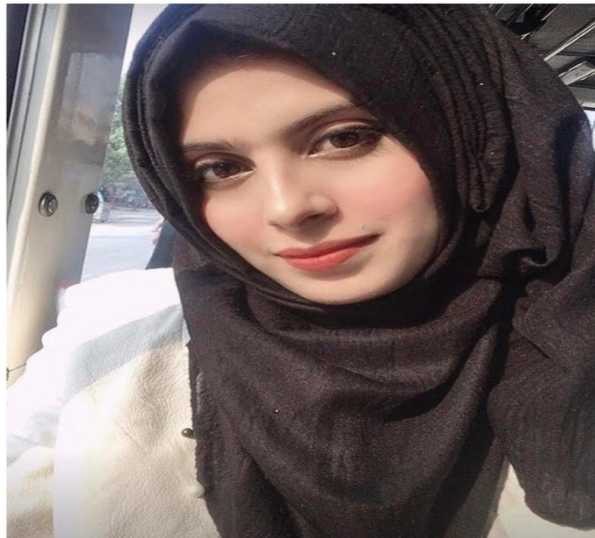


Advisors: Hui Wang & Mohsen Shakouri

Hello, I'm Sona Kamali from Tehran, Iran. I'm a mom to an incredible five-year-old girl. I studied Chemical Engineering at Sharif University, and now I'm pursuing my Ph.D. Dr. Wang is my supervisor, and Dr. Shakouri is my co-supervisor. My research is about to Develop an in situ microwave assisting heating catalytic reactor for XAS and XRD at CLS. I've been working in chemical and process engineering for over 13 years, and I'm eager to keep learning in this field. My family, especially my husband, always supports me in reaching my goals. In my free time, I enjoy baking, reading, walking, and listening to music. I love trying out new recipes for cookies and bread, and the smell of freshly baked bread makes me happy. I also enjoy traveling and being in nature. Climbing mountains helps me relax and clear my mind.

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## Amina Sabir



Advisors: Rob Scott & Mohsen Shakouri

I am Amina Sabir, a doctoral student at the University of Saskatchewan participating in the NSERC CREATE to **INSPIRE** program. My research interests lie at the intersection of nanotechnology and spectroscopy, particularly focusing on using Raman spectroscopy for disease diagnosis. I have expertise in utilizing Raman spectroscopy and MATLAB for spectral data pre-processing, nanoparticle synthesis, and their utilization in Surface Enhanced Raman Spectroscopy (SERS). My previous work includes analyzing drug-DNA interaction studies using silver nanoparticle-based substrates and SERS. I am passionate about contributing to innovative research endeavors that positively impact society and am eager to develop my skills within the **INSPIRE** program further.



December 2023

*2<sup>nd</sup> Annual  
NSERC-CREATE to INSPIRE workshop*

The 2<sup>nd</sup> Annual NSERC-CREATE to **INSPIRE** workshop was built around the theme of collaboration, which is an integral component of the program and research efforts. It was held in December 2023 on the USask campus. The day included invited speakers, a panel discussion, poster session and banquet.

**Invited Speakers**

Markus Brinkmann	Toxicology Center, University of Saskatchewan	Beyond Boundaries and Borders: The Need for Interdisciplinary and International Collaboration in the Environmental Sciences
Tracy Walker	Education Programs Lead, Canadian Light Source	Common Goal - Differing Perspectives - Strengths of Collaboration
Ashley James	Geological Sciences, University of Saskatchewan	Molecular Fate of Organometallic Mercury in Brain

### Panel Discussions

Debby Burshtyn	Dean, College of Graduate and Postdoctoral Studies, University of Saskatchewan
Tracy Walker	Education Programs Lead, Canadian Light Source
Amanda Zimmerling	Ph.D. Student in Biomedical Engineering, University of Saskatchewan
Amy Stevens	Assistant Professor of Chemistry, University of Saskatchewan

**Poster Winners** (in no particular order as it was impossible to pick a winner among such great research)

Ardalan Hayatifar	Probing interfacial Molybdate-Ferrihydrite Reactions Using Reactive Molecular Dynamics and Synchrotron X-ray Spectroscopy
Lindsay Loundagin	Glucocorticoids Inhibit Longitudinal Advance of Cortical Bone Basic Multicellular Units in Rabbits
Sakshi	The Unmasking of the Graphitic Structure Using Synchrotron and DFT Technique
Xiaoman Duan	Tissue Scaffolds Characterization Using Synchrotron Radiation Micro-Computed Tomography
Jaydeep Kumar: Fellow Choice Award	Unveiling the World of DNA Origami Through SAXS Insights



Left-to-right: Linda Vogt, Ardalan Hayatifar

## Noah Atkinson Enthusiasm Award Winners

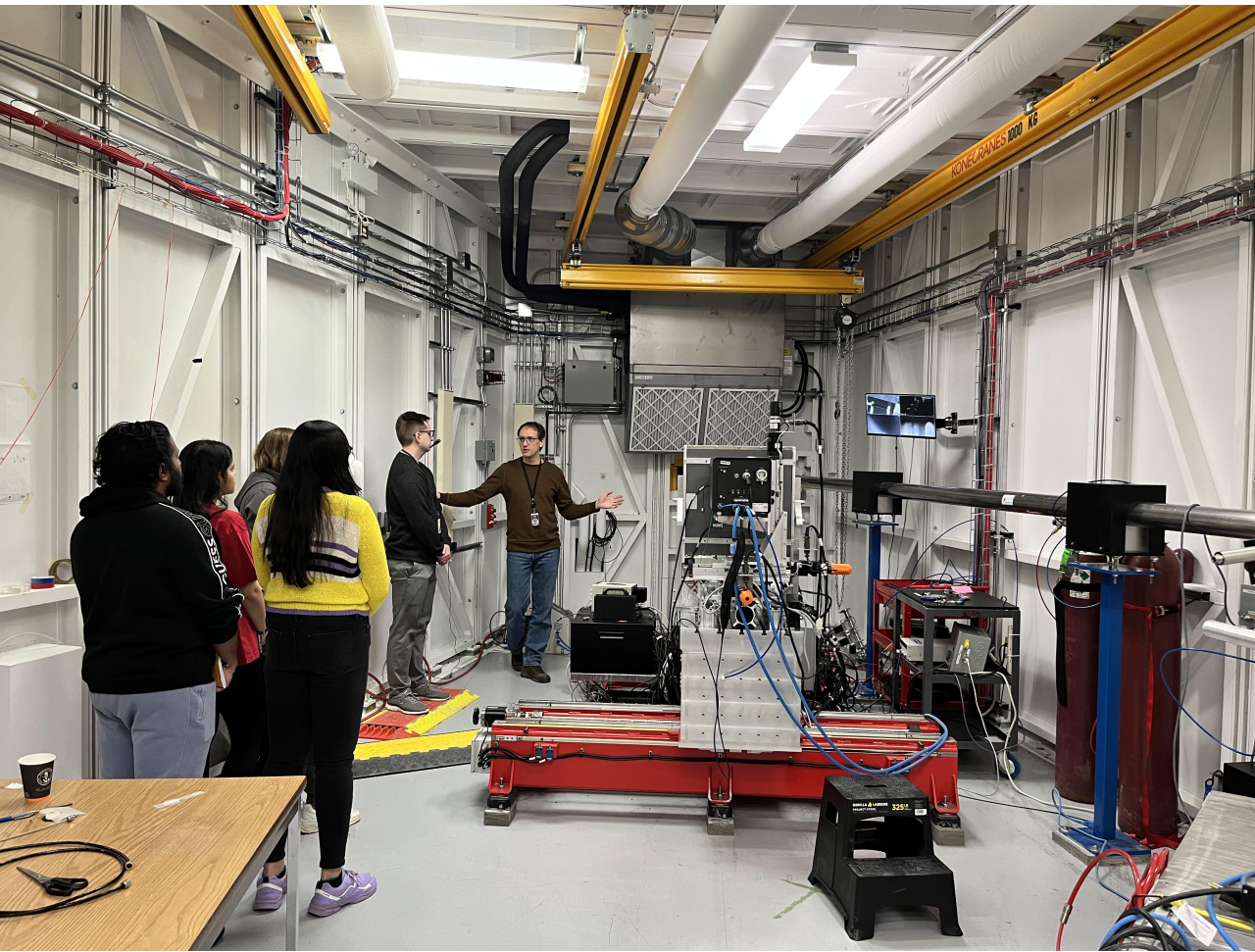
The Annual Noah Atkinson Enthusiasm Award honors the memory of an **INSPIRE** Fellow who died suddenly in summer 2022. Noah's engagement with **INSPIRE** was a shining example of what we aspire to in our CREATE program. The 2023 award was shared by two **INSPIRE** Fellows who have contributed their ideas, time, energy and expertise to continuously improving the **INSPIRE** program. Ardalan Hayatifar champions the newsletter and Seminar Series and has been involved in every workshop organizing committee and is a member of the Program Executive Committee. Linda Vogt has been a leader in the program development from the very beginning. She has led every summer program and participates in every committee imaginable (PRC, Workshops, PEC). Their enthusiasm has been integral to the development and delivery of all the **INSPIRE** activities. The prizes were signed copies of the book *X-Ray Spectroscopy with Synchrotron Radiation* by Stephen Cramer, Advanced Light Source Professor Emeritus at UC Davis and Lawrence Berkeley National Laboratory.

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## Keynote Talk

Dr. Ingrid Pickering, **INSPIRE** program leader gave the keynote address at the evening banquet and awards ceremony. Her talk outlined her inspiring life and career trajectory.





Tour Day: Brockhouse Beam

*Introduction to Synchrotron Sciences*  
*SYNC-898*

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*By*  
*Ardalan Hayatifar*

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SYNC-898 is the core course for **INSPIRE** community. It provides a broad overview of synchrotron technologies and synchrotron-based techniques, with a focus on the Canadian Light Source (CLS) synchrotron. This course consists of lectures by field experts, beamline scientists, and **INSPIRE** postdoctoral research fellows. One of the main learning outcomes of the course is to prepare students to write an effective general user proposal for the CLS. This is achieved through a group project in which students with different backgrounds come up with an idea, share their idea with the class, experts, and instructors (Verbal Pitch), and upon an informal acceptance they proceed to write a proposal that will be peer-reviewed based on the CLS guidelines by other students. This semester we hosted lecturers in a diverse array of synchrotron subjects such as synchrotron physics, beamline history and setup, spectroscopy, imaging and diffraction techniques, user support and the CLS proposal systems, and applications of synchrotron in research by postdoctoral research fellows.

Lecturer	Affiliation	Subject
G. George, Ph.D.	USask	History of synchrotrons sources
D. Chapman, Ph.D.	USask	Light and light interactions with matter
I. Pickering, Ph.D.	USask	X-ray beamlines
K. Janzen	CLS	CLS user services
MJ. Pushie, Ph.D.	USask	X-ray fluorescence microscopy
BD. Moreno, Ph.D.	CLS	X-ray diffraction & scattering techniques
T. Regier, Ph.D.	CLS	Soft X-ray absorption spectroscopy
S. Achenbach, Ph.D.	CLS	X-ray Lithography
J. Wang, Ph.D.	CLS	Soft X-ray spectromicroscopy
T. Boyko, Ph.D.	CLS	Science at REIXS
S. Rosendahl, Ph.D.	CLS	Mid infrared spectromicroscopy
A. Panahifar, Ph.D.	CLS	X-ray Transmission Imaging
M. Fodje, Ph.D.	CLS	X-ray Crystallography
A. James, Ph.D.	USask	Applications of X-ray in mercury speciation
V. Schoepfer, Ph.D.	USask	Synchrotron applications in geosciences
A. Hayatifar, Ph.D.	USask	Computational methods for X-ray spectroscopy

I had the chance to be a part of this course with my friend Dr. Ashley James. We both would like to thank all the guest speakers for their time and effort that made this course possible.

“ This course has been excellent. I’ve gained a wealth of knowledge about synchrotrons, various techniques, and the Canadian Light Source (CLS). I’ve been introduced to numerous new concepts and have been striving to excel in my learning journey. Some presentations have been particularly outstanding, and the ability to save video recordings of these presentations allows me to revisit and deepen my understanding at my own pace.

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*Sona Kamali*



Credit: V. Schoepfer

*Bridging Science and Community*  
*Insights from the Giant Mine Arsenic Mitigation Project*

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*By*  
*Valerie Schoepfer*

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The Giant Gold Mine is in Yellowknife, NT, and has been closed for around 20 years but has left serious risks and substantial hazards for residents of Yellowknife and surrounding towns. During gold production, the Giant Mine emitted substantial amounts of arsenic dust as a byproduct. This dust is currently stored underground with a tentative plan in place for risk mitigation. However, there is no current permanent plan for containment or arsenic stabilization.

Arsenic is highly toxic and carcinogenic, and its presence is a major risk for the area. Historically, the people in the area have been left uninformed, but they all have the right to know what is happening below ground and how this dust will be dealt with, both for themselves and future generations. And they have the right to participate in conversations around the risk.

I am part of a group of researchers located across Canada that are working on understanding the Yellowknife arsenic problem and are further tasked with assessing the feasibility of possible long-term solutions. Earlier this winter, I was part of a group of researchers asked to update the Yellowknife community on our research progress regarding the Giant Mine.

However, there was an unseen language barrier at both the government partner and the Town Hall meetings, despite everyone in attendance speaking English.

As researchers, we essentially live in a different world than the average person – our lives are often centered around science. We have developed our own language that we speak during the day that includes precise wording and specific terms. We talk about our specific subject to other experts so regularly and maybe exclusively, that we have discipline-specific jargon that we don't even know we use.

From the moment we started our degrees we were forced to learn this language. I think we all had that feeling of being out of place when first talking to our supervisors, or understanding the individual words they use in a meeting, but not actually understanding the overall meaning. Or feeling like they speak so fast that you get lost in two minutes. But we are immersed in it from the moment we start our degrees, and slowly pick up on the language, and even start to speak that way ourselves.

When you speak with the public, with someone for the first time, with people who may not have graduated high school or did so 40+ years earlier, that language barrier can become impenetrable if you aren't careful. Our task in Yellowknife was to minimize this barrier. We

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were told to present our findings to the public in language that could be understood by a third grader, or someone 8 years old.

That's a challenging thing to do when you are trying to explain how the synchrotron works, what data you can obtain, what that data tells you, and how it may impact them.

This meant translating almost every single word from 'science-speak' to regular English. And it seemed more difficult the more tenured a professor was. But the way through, for everyone involved, was practice. The group practiced their talks repeatedly before that public meeting, no matter what level researcher we were. But practicing alone or among other researchers in our field wasn't enough- we had to practice in front of a small lay audience and learn from that audience. We had to really listen and incorporate the audience's feedback on what words were 'foreign' and then what the translation could be. The speakers had to give up a bit of the concise and precise wording we are taught to use, in exchange for general understanding. Rather than saying it quickly and perfectly, say it accessibly. That didn't mean lying or dumbing things down. It just means using similar but different wording.

And it paid off. Because of the effort put into the translation, the public and the government officials understood and were able to ask insightful questions. We were able to present what we have learned about their town and give them the information they were so hungry for. The audience left, seemingly satisfied that we were taking their concerns seriously. But more importantly, by adapting our science language to a language understood by all, we included everyone and got everyone on the same page, rather than isolating anyone or making people feel uneducated.

Translating and making language accessible comes back to the researcher. It is our job to make sure others understand us. Otherwise, why are we doing science? Rather than leaving people out because 'they wouldn't understand' or might not 'fit into the academic world,' we must change our approach. It is our responsibility to adapt and make our work accessible to everyone. In addition to practicing and incorporating feedback beforehand, it might mean reading your audience's confused faces and adjusting your language on the fly or even slowing your speech and incorporating pauses to give time for the words to sink in. Think of what you would have wanted your supervisor to do in that first meeting and do it for others. Assume the people you are talking to want to learn, they just don't know your language.

It takes intentional work, and it takes time, but it's our job. Our goals, as researchers, should be to understand concepts around us, but also to let others know. We can't and shouldn't

hold that knowledge hostage by speaking in a foreign language. So, sharing our work and making our work accessible might mean learning to speak a bit differently. But compared to the actual time and effort we put into learning the science, speaking in a common language isn't too difficult.



(Credit: V. Schoepfer)

## INSPIRE & The CLS

### Upcoming Events

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### XRD & Scattering School 2024

The Canadian Light Source will host its third in-person X-Ray Diffraction and Scattering School for materials science this summer, from June 18-20, 2024. The school will focus in the techniques more popular among our Brockhouse beamline users: X-Ray Diffraction / Rietveld Refinement, Pair Distribution Function and Small Angle X-Ray Scattering. We will have both lectures and hands on data analysis sessions. Please, bring a laptop for the data analysis sessions. We will also include a visit to the Canadian Light Source and XRD demonstrations at the Saskatchewan Structural Sciences Centre (SSSC) at the University of Saskatchewan.

During the last afternoon, we will present an overview of advanced hard x-ray characterization techniques also available and their applications. We look to equip our present and future users with the knowledge and tools that they will use during their research. This school is primarily aimed at students and early career researchers from academia and industry, with an interest in XRD, SAXS, and PDF.

### Important Dates

- Submit your application from **March 20** to **April 30**.
- Successful applicants will be contacted from **May 1<sup>st</sup>** on, to proceed to pay the school fees.



## PUBLICATIONS

Title	Source	Date	Authors
Importance of self-interaction-error removal in density functional calculations on water cluster anions	Physical Chemistry Chemical Physics 22 (7), 3789-3799	Oct 2020	J Vargas, P Ufondu, T Baruah, Y Yamamoto, KA Jackson, RR Zope
Bioprinted constructs for respiratory tissue engineering	Bioprinting	Oct 2021	Amanda Zimmerling, Yan Zhou, Xiongbiao Chen
Oxygen K-edge X-ray absorption spectra of liquids with minimization of window contamination	Journal of Synchrotron Radiation	Nov 2021	Linda I Vogt, Julien JH Cotelesage, Charles J Titus, Samin Sharifi, Albert E Butterfield, Peter Hillman, Ingrid J Pickering, Graham N George, Simon J George
Characterization of Tissue Scaffolds Using Synchrotron Radiation Microcomputed Tomography Imaging	TISSUE ENGINEERING: Part C	Nov 2021	Xiaoman Duan, Naitao Li, Xiongbiao Chen, and Ning Zhu
Unexpected plasticity of the quaternary structure of iron-manganese superoxide dismutases	Journal of Structural Biology	Apr 2022	Mendoza Rengifo, Emerita Stelmastchuk Benassi Fontolan Laurenana, Ribamar Ferreira-Junior Jose, Bleicher Lucas, Penner-Hahn, Jim, Charles Garratt Richard

Title	Source	Date	Authors
X-ray absorption spectroscopy and X-ray diffraction data for molybdenum minerals and compounds	Data in Brief	May 2022	Schoepfer, V.A., Lindsay, M.B.J.
Repartitioning of coprecipitated Mo(VI) during Fe(II) and S(-II) driven ferrihydrite transformation	Chemical Geology	Sep 2022	Schoepfer, V.A., Lindsay, M.B.J.
Twelve Months of Denosumab and/or Alendronate Is Associated With Improved Bone Fatigue Life, Microarchitecture, and Density in Ovariectomized Cynomolgus Monkeys	Journal of Bone and Mineral Research	Dec 2022	Ifaz Haider, Lindsay Loundagin, Andrew Sawatsky, Paul Kostenuik, Steven Boyd, W. Brent Edwards
Bioprinting of alginate-carboxymethyl chitosan scaffolds for enamel tissue engineering in vitro	Biofabrication	Dec 2022	Fatemeh Mohabatpour, Xiaoman Duan, Zahra Yazdanpanah, Xavier Lee Tabil, Liubov Lobanova, Ning Zhu, Silvana Papagerakis, Xiongbiao Chen, Petros Papagerakis
Low-density Tissue Scaffolds Imaging by Synchrotron Radiation Propagation-Based Imaging Computed Tomography with Helical Acquisition Mode	Journal of Synchrotron Radiation	Jan 2023	Xiaoman Duan, Naitao Li, David Cooper, Xiao Fan Ding, Xiongbiao Chen, and Ning Zhu

Title	Source	Date	Authors
Comparison of tree-growth drought legacies of three shelterbelt species in the Canadian Prairies	Agriculture and Forest Meteorology	Jan 2023	Canning C.M., Mood B.J., Bonsal B., Howat B., Laroque C.P.
In situ wet pharmaceutical granulation captured using synchrotron radiation based dynamic micro-CT	Journal of Synchrotron Radiation	Jan 2023	Xiao Fan Ding, Xiaoman Duan, Naitao Li, Daniel Chen, Ning Zhu
Design of smart nanodiamonds: introducing pH sensitivity to improve nucleic acid carrier efficiency of diamoplexes	Pharmaceutics	Jan 2023	Alwani S, Rai R, Zittlau I, Rekve J, Michel D, Badea I.
Sulfur X-ray Absorption and Emission Spectroscopy of Organic Sulfones	Journal of Physical Chemistry A	Feb 2023	Linda Vogt, Julien Cotelesage, Natalia Dolgova, Curtis Boyes, Muhammad Qureshi, Dimosthenis Sokaras, Samin Sharifi, Simon George, Ingrid Pickering, Graham George

Title	Source	Date	Authors
Chemical Imaging of Mass Transport Near the No-Slip Interface of a Microfluidic Device using ATR-FTIR	Analytical Chemistry	Feb 2023	Flaman, Grace; Boyle, Nicole; Vermelle, Cyprien; Morhart, Tyler; Ramaswami, Bdhanya; Read, Stuart; Rosendahl, Scott; Wells, Garth; Newman, Liam; Atkinson, Noah; Achenbach, Sven; Burgess, Ian
Chemical Imaging of Mass Transport Near the No-Slip Interface of a Microfluidic Device using Attenuated Total Reflection-Fourier Transform Infrared Spectroscopy	NIH - Biotechnology Information	Mar 2023	Grace T Flaman, Nicole D Boyle, Cyprien Vermelle, Tyler A Morhart, Bdhanya Ramaswami, Stuart Read, Scott M Rosendahl, Garth Wells, Liam P Newman, Noah Atkinson, Sven Achenbach, Ian J Burgess
Low-density Tissue Scaffolds Imaging by Synchrotron Radiation Propagation-Based Imaging Computed Tomography with Helical Acquisition Mode	Journal of Synchrotron Radiation	Mar 2023	Xiaoman Duan, Naitao Li, David Cooper, Xiao Fan Ding, Xiongbiao Chen, and Ning Zhu
Vertical detachment energies of ammonia cluster anions using self-interaction-corrected methods	The Journal of Chemical Physics.	Apr 2023	Peter Ufondu, Po-Hao Chang, Tunna Baruah, and Rajendra Zope

Title	Source	Date	Authors
The various meanings and uses of bone “remodeling” in biological anthropology: a review	American Journal of biological anthropology	Jul 2023	Xuan Wei, David Cooper
Direct immobilization of Se(IV) from acidic Se(IV)-rich wastewater via ferric selenite co-precipitation.	"Journal of Hazardous Materials, Vol. 460: 132346.	Aug 2023	Yuan, Z., Su, R., Ma, X., Yu, L., Pan, Y., Chen, N., Chernikov, R., Cheung, L.K.L., Deevsalar, R., Tunc, A., Wang L., Zeng, X., Lin, J. & Jia, Y.
Synchrotron X-ray Methods in Toxicology	Neurotoxicology	Oct 2023	Ashley K James, Bogdan F Popescu, Monica Weng, Gary J Myers, John L O'Donoghue, Gene E Watson, Ingrid J Pickering, Graham N George
Critical Analysis of the Past, Present, and Future of Dendrochemistry: A Systematic Literature Review	Forests	Oct 2023	Canning, C.M., Laroque, C.P., Muir, D.
Sparse2Noise: Low-dose synchrotron X-ray tomography without high-quality reference data	Computers in Biology and Medicine	Oct 2023	Xiaoman Duan, Xiao Fan Ding, Naitao Li, Fangxiang Wu, Xiongbiao Chen, and Ning Zhu

Title	Source	Date	Authors
Understanding basic multicellular unit activity in cortical bone through 3D morphological analysis: New methods to define zones of the remodeling space	Bone	Nov 2023	Lindsay Loundagin, Kim Harrison, Xuan Wei, David Cooper
Hydrothermal alteration of magmatic titanite: Implications for REE remobilization and the formation of ion-adsorption HREE deposits, South China	American Mineralogist	Nov 2023	Yuzhou Feng, Yuanming Pan, Bing Xiao, Gaobin Chu, Huayong Chen
Influence of Breath-Mimicking Ventilated Incubation on 3D Bioprinted Respiratory Tissue Scaffolds	ASME Journal of Biomechanical Engineering	Dec 2023	Amanda Zimmerling, Yan Zhou
Synchrotron speciation of umbilical cord mercury and selenium after environmental exposure in Niigata	Neurotoxicology	Jan 2024	Monica Weng, Natalia V. Dolgova, Linda I. Vogt, Muhammad Qureshi, Dimosthenis Sokaras, Thomas Kroll, Hisashi Saito, John L. O'Donoghue, Gene E. Watson, Gary J. Myers, Tomoko Sekikawa, Ingrid J. Pickering, Graham N. George

Title	Source	Date	Authors	
Understanding Basic Multicellular Unit Activity in Cortical Bone Through 3D Morphological Analysis: New Methods to Assess the Phases of Bone	Bone	Feb 2024	Lindsay Loundagin, Kim Harrison, Xuan Wei, David Cooper	
New Canadian amber deposit fills gap in arthropod fossil record prior to end-Cretaceous mass extinction.	Current Biology	Mar 2024	Elyssa Loewen, Michaela A. Balkwill, Júlia M. Rolim, Pierre Cockx, Maria Velez Caicedo, Karlis Muehlenbachs, Ralf Tappert, Michael S. Engel, Christopher Somers, and Ryan C. McKellar	
The effect of intrinsic magnetic order on electrochemical water splitting	Applied Physics Reviews	Mar 2024	E. van der Minne, L. Korol et al.	
Arsenic Mobilization from Thawing Permafrost	ACS and Chemistry	Earth Space 11, 011420 (2024)	Mar 2024	Elliot K. Skierszkan, Valerie A. Schoepfer, Matthew D. Fellwock, John W Dockrey, Ardalan Hayatifar, Viorica F. Bondici, Joyce M, McBeth and Matthew B.J. Lindsay

Title	Source	Date	Authors
Development of a Nanoparticle System for Controlled Release in Bioprinted Respiratory Scaffolds	Journal of Functional Biomaterials	May 2024	Amanda Zimmerling, Christina Sunil, Yan Zhou, Xiogbiao Chen
Investigating the electronic properties of novel Titanium Oxonitridophosphate Ti <sub>5</sub> P <sub>12</sub> N <sub>24</sub> O <sub>2</sub> through structural distortions at the Titanium sites	Journal of Materials Chemistry	May 2024	P. Ufondu, T.D. Boyko, M.M. Pointner, L. Eisenburger, W. Schnick, A. Moewes
The various meanings and uses of bone “remodeling” in biological anthropology: a review	American Journal of Biological Anthropology	Jul 2023	Wei X, Cooper DML
Arsenic and antimony geochemistry of historical roaster waste from the Giant Mine, Yellowknife, Canada	Journal of Hazardous Materials	Sep 2023	Lum, J.E., Schoepfer, V.A., McBeth, J.M., Borčinová Radková, A., Jamieson, H.E., Walls, M.P., Lindsay, M.B.J.
Making chemical sense of phase in soft x-ray spectroscopy	Journal of Electron Spectroscopy and Related Phenomena	Jul 2023	Joseph Stitsky, Jian Wang, Stephen Urquhart



## CONTACTS

**Program Coordinator:**

Lenore West

Email: [inspire@usask.ca](mailto:inspire@usask.ca)

Website: <https://artsandscience.usask.ca/synchrotron-sciences/index.php>

