January 2023

Vol. 3, Issue 2

THE (PETRI) DISH

Faculty of Science Newsletter

Congratulations to the Faculty of Science Three Minute Thesis winners, from left to right: **Efe Obade**, Biochemistry, honourable mention; **Kyle Nickerson**, Computer Science, honourable mention; **Gustavo Diaz Cruz**, Biology, winner; **Rachel Moran**, Biology, runner up; **Mackenzie Patrick**, Earth Sciences, honourable mention; and **Varleen Kaur**, Biochemistry, honourable mention.

In the News

Newfoundlander Ben Strickland has been hosting international students, for Christmas dinner since 2010, including, for the last four years, Computer Science student **Rakibul Hasan Asif.** Saltwire

Dr. **AnnMarie Churchill**, a post-doctoral fellow in Psychology, on a stepped mental health care system with roots at Memorial now being used in P.E.I. Read

Dr. **James LeBlanc**, Physics and Physical Oceanography on the recent 'game changing' breakthrough in nuclear fission. VOCM

Dr. **Hilding Neilson**, Physics and Physical Oceanography, talks about local star lore, Indigenizing astronomy and why the space race needs to decolonize its language. CBC NL

And, from earlier this year, Dr. **Hilding Neilson** on acknowledging we live under Indigenous skies. Quirks and Quarks

Dr. **Sue Ziegler**, Earth Sciences, says nature-based climate solutions can bring other benefits to Canadians on top of carbon-capturing powers. CTV News

Dr. **Ian Jones**, Biology, says backyard bird feeders are at an extremely low risk of spreading avian flu. The Star

Dr. **Bill Montevecchi**, Psychology is raising concerns over wind energy proposals. VOCM

Program Completion

Sarah Jobson, PhD, Marine Biology

DEAN'S MESSAGE

I want to welcome all students, staff, and faculty back to campus and wish you all a happy, healthy, prosperous, and fun-filled new year.

As we begin the winter semester—even thought it hasn't felt much like winter lately; I'm sure it will soon—it is my hope that we prosper together in our efforts to learn, teach, conduct research, and engage in outreach. It is a new year and I'm sure we all hope to put the global pandemic behind us and move forward in new and exciting directions.

The coming year will be a busy one. Despite the financial challenges we face as a university and faculty, departments within the Faculty of Science will be moving forward with faculty and staff hiring while focusing on increasing diversity so that we can best serve the students who come to Memorial and the Faculty of Science. We will have new programs rolling out and we will be working on new programming that is better aimed at preparing future leaders to solve problems that we face today and that are broad enough so our graduates are equipped to pivot to solve future global challenges.

As always, the Petri Dish is full of achievements from our inspirational faculty, staff, and graduate and undergraduate students. I encourage you to have to a look through and read the many stories that have been submitted and urge you to share your upcoming accomplishments with us so that we can highlight them in the March issue.

Best wishes to all!

SAVE THE DATE!
Scientific Endeavours in Academia (SEA) Conference. April 5-6, 2023. Visit our website for more details as they become available.

FACULTY NEWS

The Department of Mathematics and Statistics donated $350 to the Single Parents' Association of Newfoundland and Labrador.

Dr. **Joshua Rash**, Psychology, President's Award for Outstanding Research

Dr. **Dave Churchill**, Computer Science, President's Award for Outstanding Teaching (Faculty)

Dr. **Kurt Gamperl**, Ocean Sciences, University Research Professor

Dr. **Duncan McIlroy**, Earth Sciences/Bonne Bay Aquarium and Research Station, University Research Professor

Alumni News

Stacy Kennedy, Earth Sciences, is the first female president of the Mining Association of Manitoba Inc. Thompson Citizen

Makayla Swain, Biology, is 'no stranger to adventure'. Door County Pulse

Dr. **Joyce Johnson**, Biochemistry, offers reminders and tips to keep the 'me' in merry this holiday season. Auburn Lane

Staff News

Dr. **Rick Goulding**, Physics and Physical Oceanography, President's Award for Exemplary Employees (Champion of Service)

Yellow Martin, Psychology, President's Award for Exemplary Employees (Champion of Service)

BIRTHS

Hannah Elizabeth, to Dr. **David Lowe**, Earth Sciences

RETIREMENTS

Rosalind Collins, Chemistry
Donna Hunt, Biochemistry

PASSINGS

Dr. **Carolyn Harley**, Psychology

In the Gazette

Science graduate students publish article in leading journal. Read

Video project spotlights Memorial-led, oil spill response related research, including that of Dr. **Uta Passow**, Ocean Sciences. Read

Earth Sciences graduate students create record of Upper Island Cove fossils. Read

An expert panel, which includes Dr. **Sue Ziegler**, Earth Sciences, says preserving Canada's ecosystems vital to climate action. Read

President's Awards a chance to celebrate community. Read

Federal grants open doors to discoveries, collaborations and training. Read

Bachelor of science student **Sarah Janes** named $100,000 Loran Scholars. Read

Annual Brosnan Lecture in Biochemistry focuses on antibiotic resistance. Read

U.K.-based STEM program guides first-year science students **Jake Breen**, Mathematics and Statistics/ Chemistry, and **Charlotte Campbell**. Read

Memorial faculty members, including Dr. **Bill Montevecchi**, Psychology, receive *emeritus* honour. Read

Dr. **Scott Grant**, Biology/Marine Institute, has been named the Qikiqtaaluk Corporation chair in Qikiqtani inshore fisheries science, training and education. Read

Biochemistry and Chemistry hosted students from St. Peter's, Holy Heart and Holy Trinity for a Let's Talk Science cancer awareness outreach session, with contributions from Beatrice Hunter Cancer Research Institute scientists and trainees. Students completed cancer case studies, did cheek swab analyses and made gel capsule polymers.

PAL Aerospace recently hosted a connector event with researchers from Memorial's faculties of Science and Engineering and Applied Science and the faculties are looking forward to future opportunities for collaboration and advancing aerospace research.

Have news to share? Email: kfoss@mun.ca

Dr. **Uta Passow** (front left) receiving the 2022 A.G. Huntsman Award. The award was presented in recognition of her significant contributions to our understanding of the ocean and its ability to respond to anthropogenic changes such as climate change and oil pollution.

Physics and Physical Oceanography helped the Johnson Geo Centre and the Marconi Radio Club celebrate the 121th anniversary of Marconi's first transatlantic transmission.

Faculty of Science
Grad Student Check in

JAN. 13, 9 -11:30 A.M.
CSF-1302

No matter where you are on your grad school journey, this session is for you!

Bring your questions and hear more about the faculty and the supports and services available.

EMAIL JBOWERING@MUN.CA TO REGISTER

STUDENT NEWS

Qingyu Zhang, Computer Science - Second in the Atlantic Canadian Programming Contest Awards, Science Atlantic Math, Stats and Computer Science Conference

Taylor Mugford, Earth Sciences - Frank S. Shea Memorial Award in Economic Geography at the Atlantic Universities Geological Conference (AUGC)

Julianna Whelan, Earth Sciences - Atlantic Geoscience Society Environmental Geoscience Award, AUGC

Antoine Morel - $10,800 from the Ocean Frontier Institute seed fund for his project Population age structure of the Atlantic puffin as a North Atlantic wide population health assessment tool

Pranav Arora, Computer Science - Winner of Better Public Transportation Ideathon 2022

Noah Slaney, Earth Science/Chemistry - Dr. Richard Huntsman Family Bursary, Rees Scholarship, Buchans Scholarship Fund of ASARCO Incorporated and the Williams Science Scholarship

Madison LaSaga, Psychology - General Rick Hillier Scholarship in Science and Leadership

Laura Taylor, Psychology - Restoration of Labrador Exploration Sites Inc. (ROLES) Science Bursary

Nicholas Pengrui Qiu, Chemistry - Dr. Allan R. Stein Scholarship in Science

Abishek Gujjar, Computer Science - Roberta H. Sellars Scholarship

Isaiah Power Smith, Marine Biology - LGL Ltd. Scholarship in Marine Science

Brianna Fortune, Biochemistry - Bruce Pardy Family Scholarship

Abby Pace, Biochemistry; **Jake Breen**, Mathematics and Statistics/Chemistry and **Mahek Bharat Parmar**, Computer Science - Churchill Falls (Labrador) Corp. Ltd. Science Scholarship

Jenna Manuel, Biology - Faculty of Science Opportunity Fund Scholarship

Kathryn Cole, Biology - Lee Wulff Scholarship

Nicole Careen, Psychology - James and Mildred Youden Scholarship

Nicholas Edwards, Ocean Sciences - Dr. Charles and J. Yvonne (Butt) Pelley Scholarship

Andrew Luther, Computer Science - Greystone Managed Investments Scholarship

Emily Granter, Psychology - Ed and Mary Lou Martin Award

Holly Butt, Psychology - Dr. Wallace Rendell Scholarship

Katherine Dibbon, Chemistry/Political Science - 2022-23 Fulbright Killam Fellow. She will represent Memorial at the University of Washington for the winter semester.

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PUBLICATIONS

Biochemistry

Wheat and rice beyond phenolic acids: Genetics, identification database, antioxidant properties, and potential health effects, *Plants*, co-authored by Dr **Fereidoon Shahidi** and **Renan Danielski**

TAAR1 regulates purinergic-induced TNF secretion from peripheral, but not CNS-resident, macrophages, *Journal of Neuroimmune Pharmacology*, co-authored by **David Barnes** and Dr. **Mark Berry**

Biology

Light dependent changes in adenylate methylation of the promoter of the mitochondrial citrate synthase gene in maize (*Zea mays* L.) leaves, *International Journal of Molecular Sciences*, co-authored by Dr. **Abir Igamberdiev**

Effect of salt stress on the activity, expression, and promoter methylation of succinate dehydrogenase and succinic semialdehyde dehydrogenase in maize (*Zea mays L.*) leaves, *Plants*, co-authored by Dr. **Abir Igamberdiev**

Evidence of hatch-time based growth compensation in the early life history of two salmonid fishes, *Ecology and Evolution*, co-authored by Drs. **Heather Penney** and **Craig Purchase**

Chemistry

Sulfur-rich polymer nanoparticles prepared by miniemulsion polymerization, *Chemical Communications*, co-authored by **Wei Wei** and Dr. **Héloïse Thérien-Aubin**

Nontargeted screening reveals fluorotelomer ethoxylates in indoor dust and industrial wastewater, *Environment International*, co-authored by **Katherine Steeves, Meera Bissram**, Dr. **Lindsay Cahill** and Dr. **Karl Jobst**

Towards the identification of humic ligands associated with iron transport through a salinity gradient, *Nature Scientific Reports*, co-authored by **Kavi Heera** and Dr. **Heather Reader**

Computer Science

Feature-classifier pairing compatibility for sEMG signals in hand gesture recognition under joint effects of processing procedures, *Bioengineering*, co-authored by **Mohammed Asfour** and Dr. **Xianta Jiang.**

A neural network based approach to inverse kinematics problem for general six-axis robots, *Advances in Mechatronics Systems and Robotics: Sensing and Control*, co-authored by Dr. **Xianta Jiang**

Earth Sciences

Mineralogic controls are harbingers of hydrological controls on soil organic matter content in warmer boreal forests, *Geoderma*, co-authored by **Mackenzie Patrick, Catie Young** and Dr. **Sue Ziegler**

Mathematics & Statistics

Multigrid reduction in time for non-linear hyperbolic equations, *Electronic Transmissions on Numerical Analysis*, co-authored by Dr. **Scott MacLachlan**

Ocean Sciences

Emiliania huxleyi—Bacteria interactions under increasing CO2 concentrations, *Microorganisms*, co-authored by Dr. **Uta Passow**.

Influence of supplemental dietary cholesterol on growth performance, indices of stress, fillet pigmentation, and upper thermal tolerance of female triploid Atlantic salmon (*Salmo salar*), *Aquaculture Nutrition*, co-authored by **Eric Ignatz, Rebeccah Sandrelli**, Dr. **Fábio S. Zanuzzo, Ashley Loveless,** and Drs. **Christopher Parrish, Matthew Rise** and **Kurt Gamperl**

Differences in energy acquisition and storage of farm, wild, and hybrid Atlantic salmon competing in the wild, *Canadian Journal of Fisheries and Aquatic Sciences*, co-authored by **Samantha Crowley,** Dr. **Christopher Parrish, Shahinur Islam** and Dr. **Ian Fleming.**

Physics & Physical Oceanography

Tunable folloids with dipolar and depletion interactions: Toward field-switchable crystals and gels, *Physical Review X*, co-authored by **Shivani Semwal** and **Cassandra Clowe-Coish** and Drs. **Ivan Saika-Voivod** and **Anand Yethiraj**

Psychology

Extension for community Healthcare Outcomes (ECHO) chronic pain & opioid stewardship in northwestern Ontario: A thematic analysis of patient cases, *Canadian Journal of Pain*, co-authored by Dr. **Joshua Rash**

Production can enhance semantic encoding: Evidence from forced-choice recognition with homophone versus synonym lures, *Psychonomic Bulletin and Review*, co-authored by Dr. **Jonathan Fawcett, Julia Rose** and **Rachelle Wakeham-Lewis**

Positive mental health in Canadian adults who have experienced childhood sexual abuse: Exploring the role of social support, *BMC Psychiatry*, co-authored by **Gillian Foley and** Dr. **Ken Fowler**

Multi-departmental/Interdisciplinary

Comparing polyphosphate and orthophosphate treatments of solution-precipitated aragonite powders, *Solids*, co-authored by **Boyang Gao**, Chemistry and Dr. **Kris Poduska**, Physics and Physical Oceanography

Modelling of p-tyramine transport across human intestinal epithelial cells predicts the presence of additional transporters, *Frontiers in Physiology*, co-authored by **Shreyasi Sarkar**, Biochemistry; Dr. **Ivan Saika-Voivod**, Physics and Physical Oceanography and Dr. **Mark Berry**, Biochemistry

The effects of LED handline attachments on Atlantic cod (Gadus morhua) catch efficacy and bycatch, *Fisheries Research*, co-authored by **Robert Blackmore**, Cognitive and Behavioural Ecology (CABE); Dr. **Pierre-Paul Bitton**, CABE/Psychology; **Shannon Bayse**, CABE; **Kira Whittaker**, Psychology; and Dr. **William Montevecchi,** CABE/Psychology

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