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Discovery Digest is a glimpse into how University of Saskatchewan research, scholarly and artistic work is making a difference for Saskatchewan, Canada, and the world. Curated by the Research Profile and Impact unit, Office of the Vice-President Research. [Feedback welcome!](#)

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This Month's Stories



USask-developed bio-glitter 'green' alternative to persistent plastics

A University of Saskatchewan (USask) engineering researcher Dr. **Bishnu Acharya** (PhD) and doctoral student **Amin Babaeighazvini** have developed an innovative glitter product that is biodegradable and uses light-reflecting shapes to create sparkles unlike any other – with the potential to mitigate plastic pollution around the world. Their product, called ChiralGlitter, is 100 per cent plant-based, made from agricultural waste products, and inspired by structural colours found in nature.

New \$8.1 million funding for VIDO will protect Canadians and our animals from high consequence pathogens

USask's Vaccine and Infectious Disease Organization (VIDO) has received a significant investment from the Canada Foundation for Innovation (CFI) to establish containment Level 4 (CL4) capacity—the highest level of containment. Once completed, this will make VIDO the only non-government CL4 facility in Canada.



USask research awarded \$3 million to help build better cities

USask College of Medicine researcher Dr. **Daniel Fuller** (PhD) is co-leading a new pan-Canadian and international research



team aiming to understand how cities of all sizes can most efficiently implement and build sustainable transportation infrastructure—such as bike lanes, bus rapid transit, and road safety projects. The USask portion—roughly \$700,000 over six years—also involves geography and planning researchers Dr. **Scott Bell** (PhD) and Dr. **Ehab Diab** (PhD) from the USask College of Arts and Science, and Dr. **Nazeem Muhajarine** (PhD), community health and epidemiology researcher from USask's College of Medicine.

Vanier and Banting award winners announced

USask doctoral students **Gilbert Adum**, **Lindsey Boechler**, **Cody Koloski**, and **Pezhman Zolfaghari Didani** have been named **2022 Vanier Scholars**. The prestigious annual Vanier Canada Graduate Scholarships recognize academic excellence, research potential, and leadership skills in scholarly work. Each student will be awarded a scholarship valued at \$150,000 over three years as they conduct their doctoral research programs.



USask's Dr. **Lilia Yumagulova** (PhD) and Dr. **Anthony Shillito** (PhD), from the University of Oxford, England, will each receive \$140,000 over two years as part of the **Banting Postdoctoral Fellowships**. Yumagulova will explore barriers and enablers of forced displacement and planned relocation of Indigenous communities due to disasters and climate change. Shillito will be working with geological sciences professors to understand details of terrestrialization.



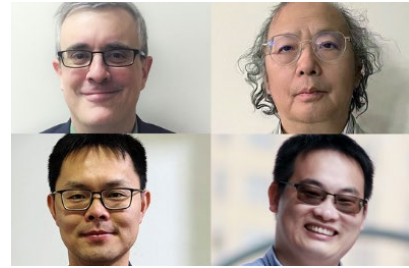
Indigenous gangs, street lifestyle focus of new Canada Research Chair

USask researcher Dr. **Robert (Bobby) Henry** (PhD) was awarded a Tier 2 Canada Research Chair (CRC) in Indigenous Justice and Well-being. Henry, an assistant professor in Indigenous Studies at the College of Arts and Science, aims to improve public understanding of street gangs and lifestyles through community-engaged research, and to inform policies that can reduce the "hyper-incarceration" of Indigenous persons.

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Zapping brain cancer with long needles opens door to new treatments

A team including USask College of Medicine researcher Dr. **Mike Moser** (MD), College of Engineering researcher Dr. **Chris Zhang** (PhD), doctoral student **Lujia Ding**, post-doctoral fellow Dr. **Zheng Feng** (PhD), and USask alumnus Dr. **Bing Zhang** (PhD) have developed a new method of killing brain cancer cells while preserving the delicate tissue around it. The technique also has a remarkable side-benefit: making chemotherapy treatment of brain cancer suddenly possible. The technique involves placing long needles through the skull and sending pulses of electrical current into a glioblastoma tumour—the pernicious variety of brain cancer that caused Tragically Hip frontman Gord Downie’s death.



Developing an Oral Vaccine for Chronic Wasting Disease (CWD)

A team of scientists at four western Canadian universities, including USask's Dr. **Scott Napper** (BSc, PhD), Dr. **Philip Griebel** (DVM, PhD) and Dr. **Suresh Tikoo** (DVM, PhD) at VIDO, as well as Dr. **Sidney Hayes** (PhD) in the College of Medicine have been awarded an NSERC Alliance Grant of \$4.25 million.

This funding will be used to develop oral vaccines for CWD that can be released in affected habitats. CWD is a prion disease of cervids – including mule deer, white-tailed deer, moose and elk – that is like bovine spongiform encephalitis (BSE) in cattle. CWD is a fatal disease that spreads rapidly and has been detected in four Canadian provinces.

USask research finds zapped, infrared-heated lentils more nutritious and 'greener' to process

By combining heat from microwaves and infrared energy, USask College of Engineering researcher Dr. **Venkatesh Meda** (PhD), Dr. **Mehdi Foroushani** (PhD), and doctoral student **Tahereh Najib** overed a new, more energy efficient way to process lentils, making them more nutritious and digestible. The findings may result in more value for consumers, food processors, ingredient manufacturers, and producers.



Shedding light on racism, colonialism in media

USask historian Dr. **Maurice Labelle** (PhD) in the College of Arts and Science is leading an international collaborative study of how the now-forgotten Non-Aligned News Agencies Pool (NANAP), laid the foundation for more equitable and decolonized news reporting by challenging racist attitudes of western news agencies. The project aims to shed new light on challenges surrounding systemic barriers in global news-making and current anti-racist

efforts to change media infrastructure in ways that amplify the voices and stories of marginalized peoples at home and abroad, he says.

USask research investigates new treatments for drug-induced neuropathy in cancer patients

USask College of Medicine researcher Dr. **Anand Krishnan** (PhD) was awarded \$120,000 by the CIHR Institute for Cancer Research and by the Cancer Research Foundation to find potential therapies for chemotherapy-drug-induced peripheral neuropathy in breast cancer. The condition which currently has no effective treatment, and results in severe pain, numbness, a lack of spatial awareness and movement defects, affects 70-100 per cent of patients undergoing Cisplatin treatment.



USask research a step closer to shedding light on bacterial infection process

Bacterial invaders are armed with a sophisticated toolbox to overcome the body's defences during infection—the content of this toolbox are proteins called effectors, and their mechanism of attacking cells to cause disease has been tough to pin down. College of Medicine researcher Dr.

Mirosław Cygler (PhD) has been studying effectors for more than a decade to understand their role in bacterial infections.

Students from Carry the Kettle Nakoda Nation using synchrotron to help bison

High school students from Nakoda Oyade Education Centre at Carry the Kettle are using synchrotron imaging at USask's Canadian Light Source to study the health of a local bison herd, with an eye to protecting and growing their numbers.



Canadian Light Source begins major upgrade



Unlocking the secrets of the freeze-thaw cycle: USask research looks at cold spots and cold moments



USask researcher asks public to report cougar evidence



Can you influence genetics for a better beer?



Fedoruk Centre at USask supports small reactor plan



Neutrons Canada board takes over reins from Canadian Neutron Initiative working group



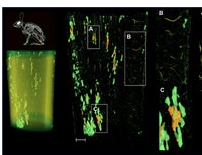
USask paleontologists awarded prestigious national, international medals



Helping Families Affected by Addiction



Global Institute for Food Security at USask making speed a priority



New bone imaging technique could lead to improved osteoporosis treatment



Van Vliet Professorship explores the economics of genetic resources in agriculture

RSV FAQ: What is RSV? Who is at risk? When should I seek emergency care for my child?

By Dr. **Athena McConnell** (MD)

As visits to emergency departments surge — and in some cases overwhelm hospitals — here are answers to frequently asked questions about Respiratory syncytial virus (RSV).



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Use the hashtag **#USaskResearch** when sharing USask-related research findings, publications or achievements on social media.

Undergraduate Research



Visit the **SURE Fall 2022 Symposium online**

The Student Undergraduate Research Experience (SURE) Fall Symposium is online. View undergraduate student research, scholarly, artistic and applied projects. Open online Dec. 2 to Dec. 31.

From OVPR

Call for SSHRC Awards Nominees – Deadline January 31, 2023

The SSHRC Impact Awards recognize outstanding researchers and celebrate their achievements in research,

research training, knowledge mobilization and outreach activities funded partially or completely by SSHRC. USask is limited to one submission per **award category** so an internal process will be held.

Internal submission deadline is Jan. 31. Email the following to research.communications@usask.ca

- Nominee name and affiliation
- **Award category** being considered
- 500-word rationale for suitability for award
- Names of those who can support nomination development (if known)
- Current CV (specific CV format not needed at this stage, however, if the nomination is to go forward, an updated SSHRC CV format will be required)



Submit your research image to NSERC's Science Exposed contest today for a chance to win!

NSERC has recently launched a new edition of the **Science Exposed** contest, in collaboration with Acfas. The research image contest challenges researchers to combine creativity and science for a chance to win cash prizes of \$2,000.

The Science Exposed contest is devoted exclusively to images of scientific research, in all fields of study, but not research in the arts. We invite you to review the **contest rules** before capturing your image. Contest closes on Monday, January

30, 2023, at 11:59 p.m. (ET).

A French version of this competition, called **La preuve par l'image** is also organized by l'Acfas in collaboration with NSERC. **Submit your image!**

(AND BONUS -- You can also submit your research image to **USask's Images of Research competition** in March 2023)

Upcoming events



Announcing: TEDxUniversityofSaskatchewan speakers

TEDxUniversityofSaskatchewan will feature pioneers in discovery who are improving lives, expanding opportunities, strengthening social cohesion and protecting the environment. In the spirit of ideas worth spreading, they will take to the TEDx stage with compelling stories of ambition and achievements, sharing their voice and vision to be what the world needs.

Our speakers for the upcoming event:

Stay tuned for topics coming in the new year!



Join Campus Conversations

Campus Conversations—conversations on research, scholarly, and artistic work at USask, hosted by the Office of the Vice-President Research—resumes for 2022-2023, starting Oct. 20.

The events are an opportunity for VP Research Baljit Singh and the OVPR leadership to connect with and hear from staff, students, and especially researchers at USask.

Mark your calendars. Everyone is welcome.

The 2022-23 Campus Conversations will be held in person from **noon to 12:45 p.m.** on:

- Jan. 25, 2023 at Convocation Hall;
- Mar. 22, at Convocation Hall;
- May 3, in HLTH GB06; and
- June 14, at Convocation Hall

In the news

- Dec. 13 – *CBC News, MSN* - **Sask. doctor says this fall's flu season 'unprecedented'**
- Dec. 12 – *StarPhoenix, MSN* - **VIDO asks city to increase its contribution to pandemic research facility**
- Dec. 12 – *CBC News, MSN* - **Wastewater study shows COVID levels are up 150 per cent in Saskatoon**
- ***Beef Cattle Health and Nutrition (Podcast)***, hosted by WCVM researcher Dr. John Campbell (DVM)
- Dec. 6 – *National Geographic* - **Europe's water crisis is much worse than we thought**
- Dec. 4 – *The Chronicle-Herald* - **When dollar goes up, food prices should come down, Dalhousie commerce expert says**
- Dec. 4 – *CBC Saskatchewan* - **VIDO Scientist, Dr. Arinjay Banerjee named to CBC Saskatchewan's Future 40**
- Nov. 30 – *New York Times, CBC News, MSN India, MSN Finance, USA Today, Reuters* - **One Step Closer to a Universal Flu Vaccine?**
- Nov. 28 – *The Globe and Mail* - **Opinion: Immigration is changing Canada for the better. But the conversation can't end there**
- Nov. 24 – *GlobalNews, MSN* - **Researchers develop new brain cancer chemotherapy that doesn't kill healthy cells**
- Nov. 23 – *What About Water (Podcast)* - **New Documentary Explores Lasting Impacts of**

Hydroelectric Projects

- Nov. 21 – *MSN Ireland, MSN Singapore, MSN NZ, MSN Weather, MSN News* - **The world's glaciers are in danger**
 - Nov. 20 – *Toronto Star* – **Opinion: The heavy hand of Canadian paternalism : Indigenous autonomy is best solution to challenges they face**
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Banner image photo credit: **A Lousy Problem - Literally!** - By Kayla Buhler, PhD student

Images of Research 2022 -- Community Impact (winner)

Funders: Natural Science and Engineering Research Council of Canada, Weston Family Foundation, ArcticNet and Polar Knowledge Canada

Description: Back in 2019, I noticed Arctic foxes at my field site with strange fur loss. When the pandemic hit, I was unable to travel to the Arctic, but scientists and trappers from both Nunavut and Norway (Svalbard) were observing similar fur loss. In 2021, I partnered with trappers in Cambridge Bay and Gjoa Haven to identify the reason for this fur loss, as it impacts the quality of pelts. Turns out that it was a lousy problem! Literally, lice were recovered from foxes in Canada and Norway, which turned out to be a brand-new cryptic species that travels with foxes as they disperse between continents across the Arctic sea ice. An important find for northern trappers!



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