

# ENGINEERING CHANGE

Quarterly update highlighting the School of Engineering's signature projects and achievements during the past four months.

As we start another calendar year, the School of Engineering stands at the precipice of some substantial and exciting change. Over the next twelve to eighteen months, a new Director will be appointed and nearly ten new faculty will join the School. These new faculty will help steer the School of Engineering into another exciting period of growth and discovery.

Several large, multi-disciplinary research initiatives are on the horizon that will join together our new and existing faculty and students with those across the Okanagan campus and beyond. Researchers will be embarking on projects that include big data, artificial intelligence, machine learning, and aerospace while staying true to our core research themes of advanced materials, advanced systems, clean technologies, health technologies and urban infrastructure.

These initiatives include a \$1.9M investment from Western Economic Diversification Canada to develop an innovation hub to promote clean technologies that convert carbon-based additive and components into new sustainable products. The project is being led by Associate Professor Lukas Bichler and involves several other faculty researchers.

As the vaccine continues to roll-out across the country, UBC is maintaining its COVID safety protocols which include reduced capacities in buildings and research labs. The pandemic has also delayed the opening of the new Innovation One Precinct on the edge of campus; which is now set to open in the spring.

There is little question that students and faculty alike have faced challenges with online learning, but positive strides are being made to address these hurdles. Student design teams and clubs are still connecting with their members in virtual spaces and navigating this current reality.

As the School of Engineering looks ahead to this year, the administration wishes to thank its students, staff, faculty, and stakeholders for their unwavering and enthusiastic support heading into a very exciting next phase in the School's journey.

Visit [engineering.ok.ubc.ca](http://engineering.ok.ubc.ca) for program details & collaborative research opportunities

## SCHOOL OF ENGINEERING LEADERSHIP TEAM

- Rehan Sadiq - Executive Associate Dean
- Mina Hoorfar - School Director
- Yang Cao - Associate Director, Undergraduate Studies
- Sumi Siddiqua - Associate Director, Graduate Studies
- Lukas Bichler - Associate Director, Research and Industrial Partnerships
- Rudolf Seethaler - MEng Coordinator
- Dwayne Tannant - Civil Engineering Program Chair
- Julian Cheng - Electrical Engineering Program Chair
- Dimitry Sediako - Mechanical Engineering Program Chair
- Homayoun Najjaran - Manufacturing Engineering, Program Chair
- Colin Wilson - Director, Research and Industry Partnerships (250-317-7688)

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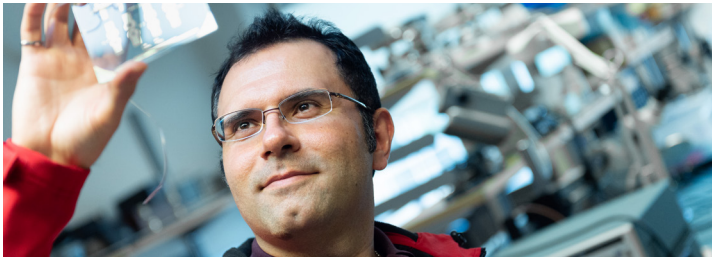
School of Engineering

Faculty of Applied Science  
Okanagan Campus

# ENGINEERING CHANGE REPORT

February 2021

Issue 005



## Ice detection from microwave sensors rising to new heights

New UBC Okanagan research is changing the way aircraft and wind turbine operators are addressing the risks related to ice build-up. Assistant Professors Mohammad Zarifi and Kevin Golovin have improved the real-time response of the sensors to determining frost and ice build-up for aviation and wind-power applications.



## Innovative technology tracks shipping containers in real-time

Using deep learning algorithms, including cloud computing technology, Professor Zheng Liu and a team of student researchers are developing a monitoring software that can be used by shipping companies to track shipments more effectively. The system can identify containers in less than a second to improve logistics at shipping ports.



## New tool removes chemotherapy drugs from water systems

Researchers at the Nanomaterials and Polymer Nanocomposites Laboratory have designed a porous nanomaterial, called a metal-organic framework (MOF), that is capable of adsorbing toxic pollutants from water. The innovation was uncovered by Assistant Professor Mohammad Arjmand and his team at the NPPL.



## New student design club seeks out sustainable solutions

The School's newest student design club, Innovate, Design, Sustain (IDS), seeks to uncover innovative engineering and scientific solutions to create a more sustainable environment on campus and throughout the Okanagan. Spearheaded by three undergraduate students, the new club was recently registered under the UBC Okanagan Students' Union.



## Optimizing solar energy

A new residential solar energy system atop the VEDA student residences near UBC's Okanagan campus is being analyzed, and may serve as a real-world lab for UBC researchers. Alexander Uhl, assistant professor will oversee the project that aims to maximize the profitability and energy output of solar power systems.



## Breakthrough design vastly improves mechanical heart valve

An innovation developed in the Heart Valve Performance Lab addresses a decade's-old design that increases blood flow and prevents clots. With this new heart valve, Associate Professor Hadi Mohammadi and his team may take the current 'gold standard' for heart valves to a new level of reliability.

For the latest information related to COVID-19 and the School of Engineering visit [engineering.ok.ubc.ca/covid-19/](https://engineering.ok.ubc.ca/covid-19/). For UBC-wide updates, FAQs and resources, visit [ubc.ca](https://ubc.ca). For UBC Okanagan-specific updates, visit [ok.ubc.ca/covid19](https://ok.ubc.ca/covid19).

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