



University
of Victoria

PHYSICS AND ASTRONOMY COLLOQUIUM

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**“A water quality monitoring using astro-particle physics
technology”**

Abstract

“The supply of clean drinking water is a globally pressing subject. Water sources are contaminated by human activities such as farming pesticides, oil spills, and industrial and domestic chemical releases. Currently, there are 43 long-term drinking water advisories in 31 communities across Canada, with the issue disproportionately affecting remote Indigenous communities. Threats to clean drinking water are exacerbated by climate change, both by changing the frequency and intensity of storm events and through longer and warmer summers, which may affect the incidence of toxic algal blooms. A team of interdisciplinary university members, who specializes in water Cherenkov detector in subatomic physics, water treatment engineering, and water environmental studies, collaborate with First Nations communities and a municipal water treatment facility to develop a new type of sensitive drinking water monitoring system which continuously monitor the water quality. This pilot project will develop the detector, gain experience in operation in the first nations communities, analyze data for environmental research, and train young talents including those in the first nations communities through this interdisciplinary project. Continuous online water monitoring at the municipal water treatment facility would open up a new paradigm of water treatment by dynamically adjusting the water treatment parameters.”

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3:30 p.m. PDT

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