

Chemical & Physical Sciences
UNIVERSITY OF TORONTO

MISSISSAUGA

COLLOQUIUM SEMINAR SERIES

**STRATIGRAPHIC CONSTRAINTS ON EARLY
ANIMAL EVOLUTION**



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The base of the Cambrian marks a fundamental, eon-scale stratigraphic boundary and a major transition in global biodiversity with the subsequent radiation of modern animal phyla. Despite the proliferation of a wide range of mechanistic hypotheses regarding relationships among environmental, evolutionary, and ecological change across the Ediacaran-Cambrian boundary, the scarcity of radioisotope geochronologic data for this interval consistently surfaces as an obstacle in rigorously testing these concepts. This has led to enduring controversy on whether the Cambrian radiation is better understood through a Darwinian “gradualist” lens or a Gouldian “catastrophic” lens. In this talk, I will present integrated stratigraphic data sets from southern Africa and southwestern North America, including paleontology, stable isotope geochemistry, and high-precision U-Pb geochronology data. I compare these broadly coeval, Ediacaran-Cambrian marine sedimentary records to constrain rates of environmental and evolutionary change during this interval.

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featuring

Dr. Lyle Nelson

Wednesday, March 15, 2023 | 3:30pm

Location: CC2150