



Chemical & Physical Sciences

UNIVERSITY OF TORONTO

MISSISSAUGA

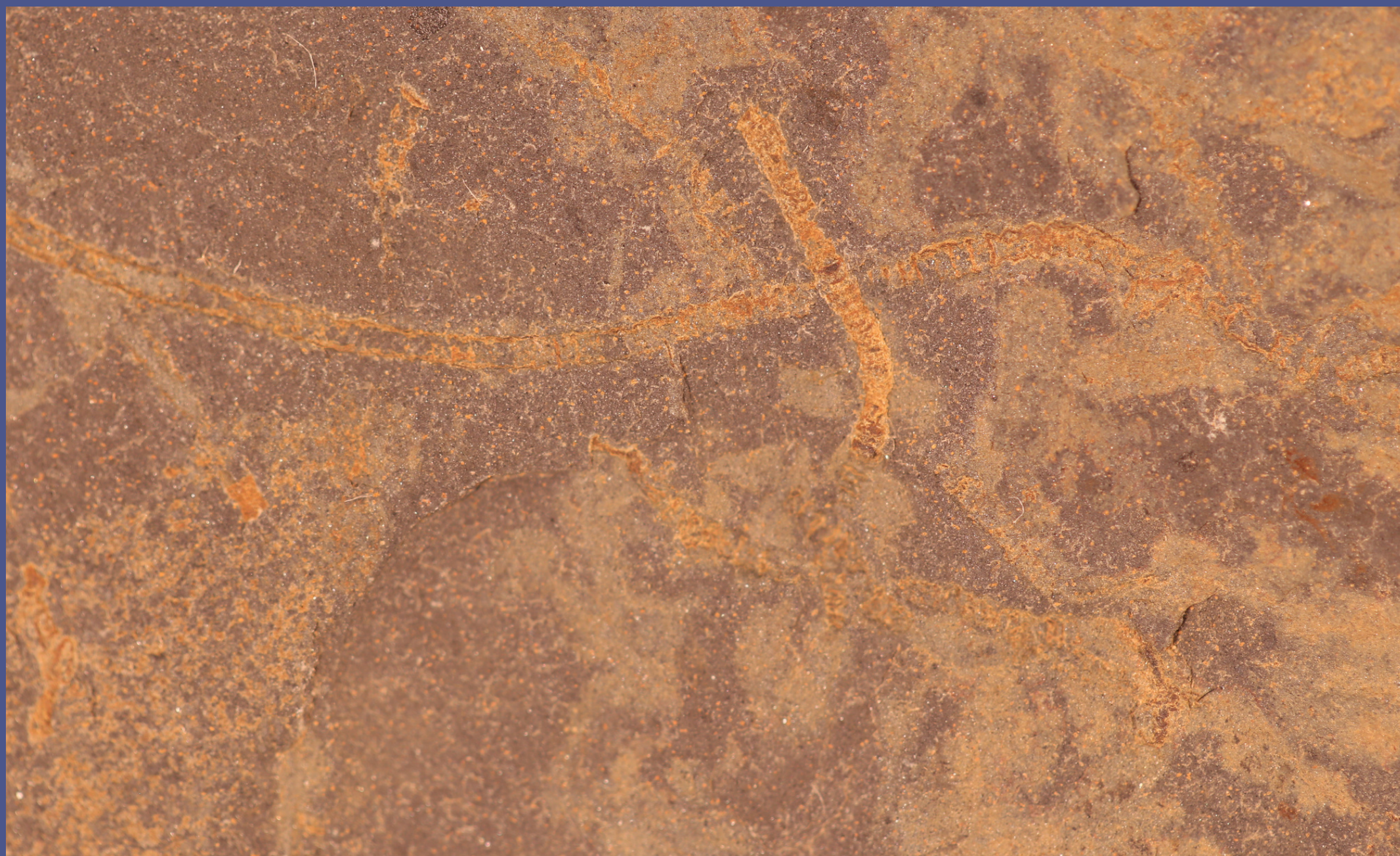
## COLLOQUIUM SEMINAR SERIES

### TONIAN MACROALGAE FROM THE MACKENZIE MOUNTAIN SUPERGROUP IN THE WERNECKE MOUNTAINS, YUKON TERRITORY



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Early eukaryotic fossils are crucial to understanding the evolution of the Earth, but poorly reflected in the fossil record. New, centimeter-scale macrofossils were recovered from the outer shelf marine facies of the ca. 950 Ma Dolores Creek Formation, Wernecke Mountains. The macrofossils are interpreted as eukaryotic macroalgae with a likely green algal affinity, making them among the oldest macroalgae yet recognized and filling a critical gap in algal evolution. Analytical microscopy techniques were used to investigate fossil preservation and develop a taphonomic model. The fossil preservation consists of pyritization and aluminosilicification, similar to accessory mineralization observed in the Paleozoic Burgess Shale-type preservation. The macroalgae are systematically defined as a new genus and species based on their morphology including an unbranching, uniseriate thallus with uniform width and elliptical to globose holdfasts. The unstable redox conditions that defined the macroalgae's paleoenvironment in the Wernecke Mountains were constrained using geochemical analyses. The Dolores Creek macroalgae provide evidence that benthic green algae colonized shallow marine habitats by the early Tonian Period and aid in reconstructing the late Proterozoic biosphere.

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*featuring*

**Dr. Katie Maloney**

Wednesday, December 14, 2022 | 3:30pm

**Location:** CCT2150