Canadian Institute of Mining and Metallurgy
Thunder Bay Branch

CENTRE OF EXCELLENCE FOR
SUSTAINABLE MINING & EXPLORATION

CIM Guest Lecturer

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2:00 p.m., Monday, April 12th, 2021
Via Zoom

Applications of mineral chemistry to petrogenesis and exploration in conduit-type Cu-PGE deposits

Exploration for mineral deposits is becoming increasingly challenging as the industry shifts away from identifying shallow mineralized intrusions to identifying deep-seated intrusions. The success of mineral exploration, therefore, depends on the development of robust mineral deposit models and geochemical exploration tools. Development of such exploration criteria for magmatic Ni–Cu–PGE deposits has been challenging as these systems develop and are modified by a complex set of magmatic and post-magmatic processes. Using the Cu–PGE-mineralized Eastern Gabbro of the Coldwell Complex, Ontario, Canada as an example, we will explore the petrogenesis of the host rocks and the processes that generated and modified the conduit-type mineralization using Fe–Ti oxide and base-metal sulfide chemistry, and assess the applicability of Fe–Ti oxide and late-stage vein mineral chemistry to identifying and vectoring towards mineralization. This presentation will highlight the complexity of conduit-type Ni–Cu–PGE systems that arise from the combination of primary magmatic and late-stage hydrothermal processes, the challenges associated with the development of robust exploration tools, and the need to integrate detailed textural analysis with high-resolution mineral chemistry in the assessment of mineral deposit petrogenesis.

For further information, please contact:
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