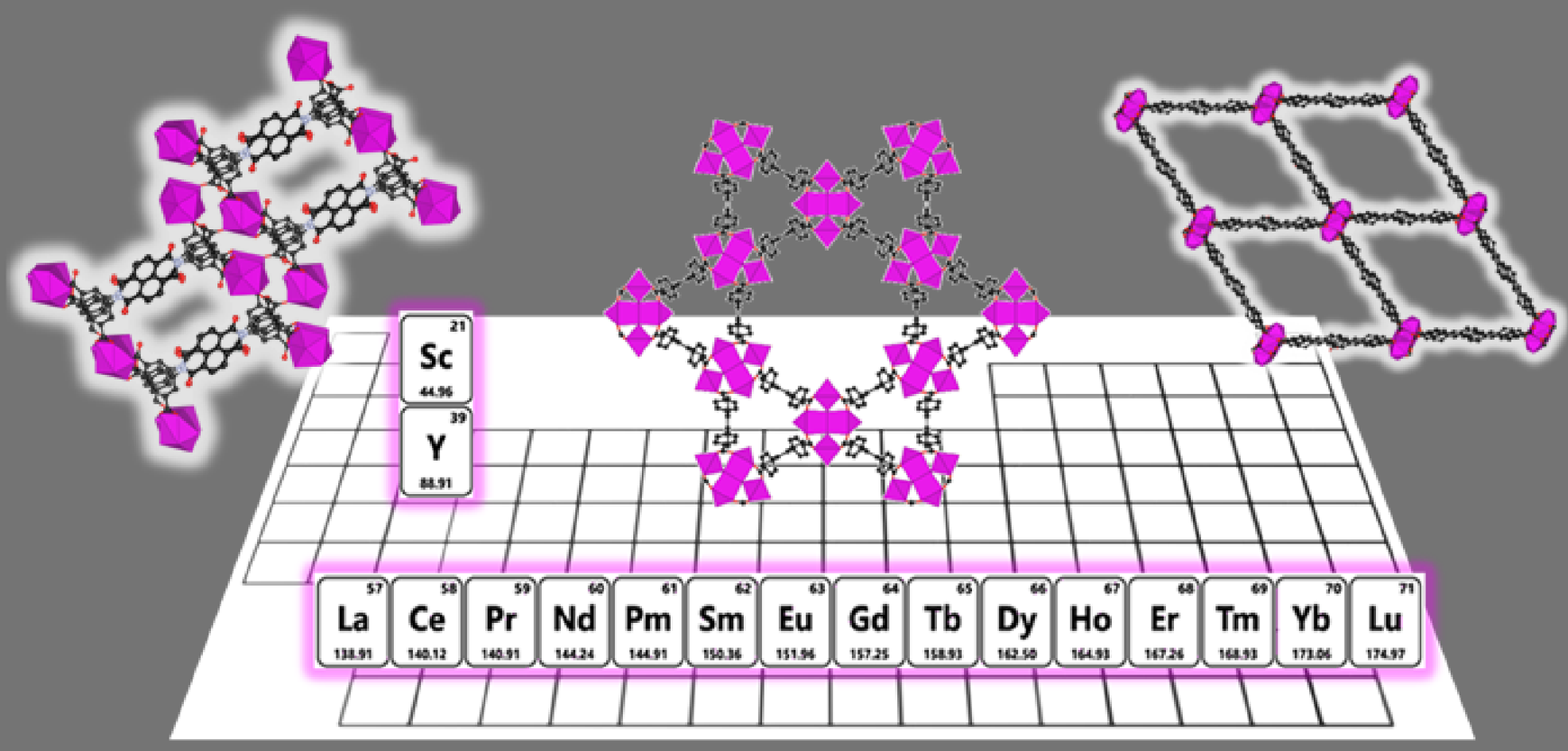
Chemical & Physical Sciences
UNIVERSITY OF TORONTO
MISSISSAUGA

COLLOQUIUM SEMINAR SERIES

FROM DETOXIFYING CHEMICAL WARFARE AGENTS TO SOLID STATE LIGHTING: ADVENTURES IN THE SYNTHESIS OF RARE-EARTH METAL–ORGANIC FRAMEWORKS



Metal-organic frameworks (MOFs) are structurally diverse, porous materials comprised of metal nodes bridged by organic linkers. These scaffolding-like structures can be thought of as atomically precise molecular sponges. Through careful choice of nodes and linkers to build the scaffold, the chemical and physical properties of MOFs can be elegantly tuned and materials with high surface area and porosity can be obtained. As a consequence, MOFs have been explored for many potential applications including, but not limited to, gas storage and release, chemical separations, catalysis, drug delivery, light harvesting and energy conversion, and the detoxification of hazardous analytes. In addition to these promising potential applications, MOFs offer an interesting platform for studying fundamental concepts in inorganic materials chemistry. In the Howarth group at Concordia University, we are particularly interested in the study of MOFs comprised of rare-earth (RE) ions, in part, because of the high and variable coordination number of these ions, which allows several unique and intricate MOF topologies to be designed and synthesized. Furthermore, RE-MOFs can be produced with diverse optical and electronic properties dictated by the 4f electron configurations of the RE ions in the framework. In this presentation, RE-MOFs are explored from design and synthesis, to potential applications in the detoxification of chemical warfare agents and solid state lighting.

COLLOQUIUM SEMINAR SERIES

featuring

Dr. Ashlee Howarth, Concordia University
Department of Chemistry and Biochemistry

Wednesday, November 16, 2022 | 3:30pm

Location: **CC2150**