



PHYSICS AND ASTRONOMY COLLOQUIUM

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“Muon Geotomography for Mineral Exploration”

Abstract

Geological science is always on the lookout for new techniques to augment the tried and true approaches like electromagnetic, gravity, and seismic imaging. This is especially the case for exploration because imprecise findings can lead to expensive borehole drilling. In this talk, I will discuss a tomographic imaging technique that uses cosmic rays and particle physics tracking technology for exploration of mineral deposits beneath the earth's surface. The method can be used to identify and localize deposits such as massive sulfides (e.g. Cu-Ni deposits) or concentrated uranium ores which have higher density than the surrounding rock. 3-D images of the earth's density distribution at up to one kilometer depth can be obtained. A proof-of-principle demonstration was recently completed at a mine on Vancouver Island and further development of exploration methods, inversion image analysis, and equipment is envisioned.

Wednesday, September 12, 2012

3:30 p.m.

Bob Wright Centre

Room A104