

## Assessing the feasibility of calcium carbonate polymorph separations for archaeological applications

Cole Walsh

Department of Physics and Physical Oceanography

Memorial University

Sidney, BC

**DATE:** Monday, February 2, 2015

**TIME:** 3:15 PM

**PLACE:** C3067

**ABSTRACT:** Calcite and aragonite are the two predominant crystalline forms of calcium carbonate ( $\text{CaCO}_3$ ). Their presence can sometimes indicate human activity in archaeological settings. For example, recent evidence shows that both calcite and aragonite can be present in anthropogenically produced lime plasters. This makes these materials good candidates for radiocarbon dating. Under normal circumstances, lime plasters can be contaminated with other sources of carbon with different radiocarbon levels. However, aragonite is known to dissolve more readily than calcite, so its presence could be a strong indicator for well preserved plaster. Therefore, selectively dating the aragonite could provide a more accurate means of radiocarbon dating, and thus is of great interest to the archaeological community. However, separating the two polymorphs provides a difficult experimental challenge.

In this talk, I will describe a strategy we used to try to separate calcium carbonate polymorphs, calcite and aragonite, using electrophoretic separation methods that exploit surface charge differences.

**ALL ARE WELCOME!!!**