**CHE, MIN and MSE Interdisciplinary Candidate Seminar**

**Microwave Pre-Treatment of Ultramafic Nickel Ores for Improved Mineral Processing and Carbon Sequestration**

**Thursday Nov 19, 10:10 am, WB 130**

**Presenter**

**Dr. Erin Bobicki, P. Eng.**

**Intel Corporation, Hillsdale OR**

Mineral carbon sequestration (MCS) is a type of CO2 storage based on rock weathering processes where CO2 is reacted with alkaline minerals to form solid carbonates. Although MCS has a number of advantages over other carbon storage techniques, an economic process for MCS has not yet been developed. To reduce costs, it is suggested that waste products be used as feedstock and that MCS be combined with other processes. Serpentine (Mg3Si2O5(OH)4) mine waste generated by ultramafic nickel ore processing operations was selected as the feedstock in this study. While useful as MCS feedstock, serpentine is undesirable in mineral processing operations as it has a negative effect on grinding and froth flotation. A novel process is proposed where ultramafic nickel ores are treated with microwave radiation prior to grinding with the goal of improving both mineral processing and MCS operations. The microwave heating characteristics of ultramafic nickel ores and the effects of microwave pre-treatment on ultramafic nickel ore mineralogy, grindability, and slurry rheology, as well as the carbon storage capacity of the waste material, are detailed in this presentation.

Biography:

Dr. Erin Bobicki is a process technology development engineer at Intel. She received her B.A.Sc. in Environmental Engineering from UBC/UNBC, after which she joined Vale Inco Technical Services in Mississauga, where she was an EIT. She then worked as the mill metallurgist for Vale at Voisey’s Bay, Labrador between 2008-2010 before going to graduate school. She received her PhD in Chemical Engineering from the University of Alberta, followed by a brief postdoc at U of A, before joining Intel.

Note: Dr. Bobicki is a candidate for an interdisciplinary faculty position within FASE. She will also be giving a classroom lecture on Friday, November 20 at 10:10 am in GB 220, entitled "Introduction to Materials Balances in Mineral Processing". All interested faculty and students (both undergraduate and graduate) are invited to attend.