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ΠΡΟΣΚΕΚΛΗΜΕΝΗ ΟΜΙΛΙΑ ΠΡΟΣΚΕΚΛΗΜΕΝΗ ΟΜΙΛΙΑ

ΟΜΙΛΗΤΡΙΑ: **Dr. Kris Poduska**, Professor
Department of Physics and Physical Oceanography
Memorial University, Canada

ΘΕΜΑ: **Disorder in Crystal Lattices: Characterizing Natural and Synthetic Materials**

ΤΟΠΟΣ: Αίθουσα Σεμιναρίων ITE/IEXMH

ΗΜΕΡΟΜΗΝΙΑ: **Δευτέρα, 12 Μαΐου 2014**

ΩΡΑ: **12:00**

ΠΕΡΙΛΗΨΗ:

As a discipline, chemistry has a strong focus on synthesizing and characterizing new materials with specific uses. In contrast, the field of archaeological science takes advantage of material characterization techniques to work backwards, using structural and compositional signatures in excavated materials to get clues about their production and function.

This task is especially challenging when changes to a material have occurred due to interactions with the environment in which it was deposited.

One powerful screening tool for archaeological materials is Fourier Transform Infra-Red (FTIR) spectroscopy. I will describe how we have used vibrational spectroscopy to assess crystallinity differences among biological, geological, and human-produced calcium carbonate materials.

These structural differences can provide valuable insights into material formation pathways. As an example, I will show what we have learned about plaster-production technologies used by Neolithic peoples in the Near East as they were on the brink of discovering pottery.



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Short Bio

Kris Poduska has been a professor at Memorial University in the Department of Physics and Physical Oceanography since 2003, with a cross-appointment to the Department of Chemistry since 2009. After completing an undergraduate degree in physics (Carleton College, USA) and a PhD in solid state physics (Cornell University, USA), she did postdoctoral work in surface electrochemistry at York University (Canada). Her research program at Memorial University has been funded by national and provincial grants for both projects and equipment, and she has been involved in collaborative R&D with several different companies. She received a Petro-Canada Young Innovator Award in 2009, and she has been a visiting scientist at the Weizmann Institute of Science (Israel) from 2009-2010, and 2014.

Poduska's research interests center on the relation between structure and physical properties in materials, with diverse applications in magnetic, optical, electronic, biomedical, or archaeological contexts. Researchers in her lab use a variety of different materials synthesis techniques (including electrochemical deposition and solid-state syntheses), as well as a wide range of material characterization techniques (including vibrational spectroscopy, X-ray diffraction, scanning probe microscopy, magnetometry, and DC/AC electrical property characterization).