University of Victoria
Centre for Advanced Materials & Related Technology

CAMTEC SEMINAR

TITLE: ***Rare Earths for a Sustainable Earth***

SPEAKER: **Prof. Andries Meijerink**
Utrecht University, Netherlands

DATE: Friday, July 22, 2016

TIME: 11:00 am – noon

LOCATION: ECS 660

Abstract:

The themes Earth and Sustainability have been high on the scientific and political agenda for decades now. The Rare Earths or Lanthanides are however not well known. The name Lanthanides is derived from the Greek word "λανθανειν" (to lie hidden) and this group of elements, also hidden at the bottom of the periodic table, honored their name until China decided to limit the export of these elements. Only then the Rare Earth made it in the news and it became better known in society that they play a key role in many high tech applications, including many solutions to make our society more sustainable.

In this lecture an introduction will be given on the assumed rarity and production of rare earths. After this the unique chemical, magnetic and optical properties will be explained and related to the role of rare earths in sustainability, e.g. windmills, hybrid cars, batteries, catalysts and lighting. In the final part of the presentation the role in lighting and spectral conversion for solar cells will be explained in more detail. Rare earths play a key role in energy efficient lighting and are applied as efficient light emitters in almost all artificial light sources, including fluorescent tubes, displays and white light LEDs. The possibility upconvert (adding up) and downconvert (cut into two) photons has the potential to raise the efficiency of solar cells significantly. The final topics will be money and chemistry.

Please contact the CAMTEC office for further information: (250) 721-7736 or camtec@uvic.ca