

# FÖRÄM.S. 2010

## Keynote Presentation

Monday, September 6, 2010

Room XXXXX

08:30 **Lennart de Nooijer:** *Foraminiferal biomineralization – new insights, new questions*

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**Abstract** – Foraminifera are among the most important proxy-carriers used for paleoceanographic reconstructions. Trace element and stable isotope composition of the calcite they produce depends on a range of environmental conditions: for example, the amount of Mg incorporated into the calcite of a foraminiferal shell is a function of seawater temperature. Cellular activity of the foraminifer also influences incorporation of elements (Mg, Ba, B, etc) and fractionation of isotopes ( $\delta^{18}\text{O}$ ,  $\delta^{11}\text{B}$ , etc) during calcification. In order to precipitate  $\text{CaCO}_3$ , foraminifera take up sea water and extract  $\text{Ca}^{2+}$  and (b)carbonate which they store in intracellular pools until they are used for calcification. The cellular machinery responsible for production of these pools is largely unknown, although their identification is the only way to mechanistically understand calcification and trace element partitioning and isotope fractionation (and sensitivity of them on environmental parameters). Recent application of a number of techniques (e.g. fluorescent probes) has led to the identification of a number of key cellular mechanisms and strategies and have resulted in a new foraminiferal calcification model.