New Techniques for Nanoanalysis and Nanogeology

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Outline of Discussion

- Short discussion of the definition of "nanogeology"
- LEAP technique.
- FIB-SIMS and related techniques.
- Initial results of atom probe and FIB-SIMS analyses for a metamorphic magentite.

What *IS* "Nanogeology?"

- "The Application of Nanotechnology in Earth Sciences."
  - MEMS/NEMS
  - Nanotubes/Biomimetic materials
  - Nanomachines
  - Self-assembling systems
- What is "Nanotechnology?"

  The word "nanotechnology" has become very popular and is used to describe many types of research where the characteristic dimensions are less than about 1,000 nanometers.*

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What *IS* "Nanogeology?"

- "Geology" is
  - A science that deals with the history of the earth and its life especially as recorded in rocks,
  - A study of the solid matter of a celestial body (as the Moon).*
- "Nano" = one billionth (10^{-9}) part of something.*
- Proposed definition of "Nanogeology."
  - The study of geologically relevant samples with resolution below the spatial scale of 1000 nanometers.

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