Quantifying Magnetic Interactions – linking images from TEM Observations with First Order Reversal Curves (FORCs)

A.P. Chen, R. Egli, and B. Moskowitz (PI), Institute for Rock Magnetism, Newton Horace Winchell School of Earth Sciences

- **Sample**
  Biologically-controlled magnetite particles (~50nm) produced by magnetotactic bacteria

- **Methods:**
  - Use TEM observations to obtain a statistical distribution of particle cluster dimensions.
  - Use first order reversal curves (FORCs) (Pike *et al*. 1999) to characterize magnetic interactions in the sample.

- **Goal:**
  Model the connection between FORCs diagrams and statistical distribution of particle clusters.


FORCs diagram of magnetite particles produced by magnetotactic bacteria. Hc axis denotes the magnetic coercivity and the Hb axis denotes the magnetic interaction field.