DynoMag AC susceptometer

DynoMag is a portable, easy to use AC susceptometer. It measures the real and imaginary components of the AC susceptibility in a wide frequency range. The instrument enables determination of the dynamic magnetic properties of liquids, powders or solid samples.

Typical application areas include:
- Measurement of size distribution of magnetic nanoparticles (MNP)
- Quality control during synthesis and manufacturing of MNP
- Studies of binding reactions of biomolecules to the surface of MNP

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A DynoMag measurement of the AC susceptibility versus frequency for magnetic nanoparticles dispersed in a liquid (Chemicell FluidMag cobalt-ferrite). The decrease in real part and the maximum in imaginary part of the susceptibility around 400 Hz is due to Brownian relaxation of the nanoparticles. The residual non-zero real susceptibility above 10 kHz comes from fast Néel relaxation.

A fit to the measured data in the left figure. With the analysis package you can fit your experimental DynoMag data and determine the particle size distribution from the Brownian relaxation as well as Néel relaxation of single core particles.