

Trapping an individual nanoparticle. Helgi Þór Helgason, Snorri Ingvarsson,
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There are clear indications that magnetic materials behave differently when their dimensions are restricted to the nanometer size scale. This project aims at studying ferromagnetic materials on that scale directly and understanding how their magnetic properties and magnetic dynamics change.

The main goal of this project is to build an electrostatic trap for individual magnetic nanoparticles (or nanoparticles in general). The trap consists of two closely spaced metallic electrodes on a Si substrate. We intend to trap a single ferromagnetic nanoparticle between the two electrodes, and study its properties through electronic transport measurements.

We shall report on progress in sample fabrication. The trap is fabricated by e-beam and optical lithography and etching, and has required acquisition and mastering of instruments that were unavailable in Iceland prior to this work.

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