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### Microfabrication and Magnetic Particle Spectrometry of Magnetic Discs

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#### Abstract

We report on the fabrication of dispersions of Au/Ni<sub>81</sub>Fe<sub>19</sub>/Au magnetic discs with two and three micrometer diameter and thickness in the order of hundred nanometers. The magnetisation reversal of the discs was analysed on a time-scale of an hour and a few milliseconds, to assess their suitability for magnetic particle imaging. We conclude that compared to FeraSpin particles, these microfabricated particles saturate in fields as low as 12 mT, the shape of the hysteresis loop is relatively independent on the field sweep rate, and the difference in phase between higher harmonics is constant up to the 20th harmonic. These radically different magnetic properties suggest that that microfabricated particles might have advantages for applications such as magnetic particle imaging.