

## **Resolving magnetic nanostructures in the 10-nm range using MFM at ambient conditions**

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Following the demand of the magnetic data storage industry, the magnetic structures in hard disk heads are continuously shrinking. This requires a powerful tool to investigate the magnetic properties of these elements in the range of about 10 nm. To achieve this goal, we prepared MFM tips using the electron-beam deposition (EBD) contamination technique, where carbon caps and needles are grown onto the micromachined Si cantilevers. For batch production of MFM tips, however, this technique is not suited well, so we employ the focussed ionbeam (FIB) technique to produce MFM tips with a high aspect ratio similar to those tips with carbon needles. We show that the use of these tips not only improves the lateral resolution, but also considerably reduces the disturbance effects of the weak magnetic structures due to the magnetic tips.