

# 18: Structural defects and magnetic domain imaging

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Objectives :

To combine experiments (Nanoindenter, AFM, Magnetic force Microscopy, Transmission electron microscopy) linking microstructural defects (twins, dislocations grain boundaries) and magnetic domains.

Various materials are proposed (*à la carte*):

- Thin films developing perpendicular magnetic anisotropy (Cu/Ni multilayers on Si[001] substrate –magnetostriction),
- Fine grains (30-500nm) of bulk magnetocrystalline anisotropic FePt,
- Thin film of ordered FePd on MgO.

Content :

- controlled injection of defects by nanoindentation and AFM indentation from the film and/or the substrate (MgO),
- MFM observations of magnetic domains,
- Coupling of observations by AFM-MFM and TEM of a given area (FePt)

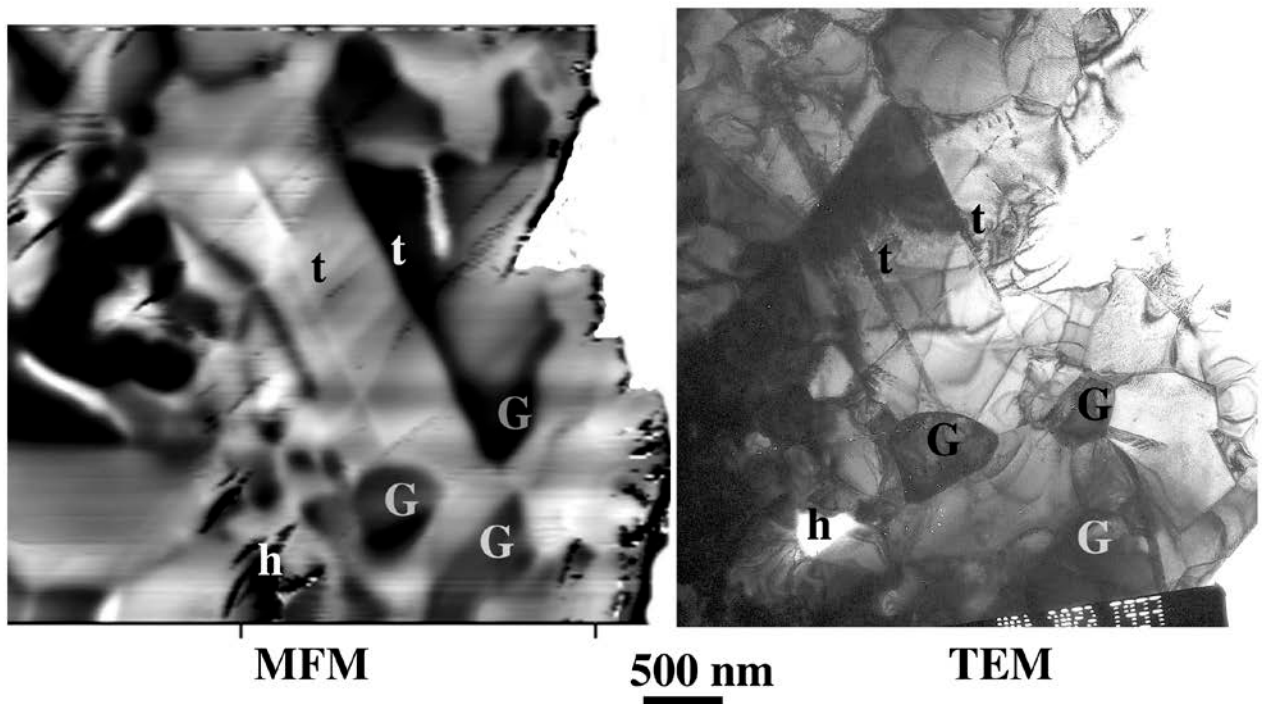


Fig. 1: Coupled observations of L1o FePt thin film in MFM and TEM.