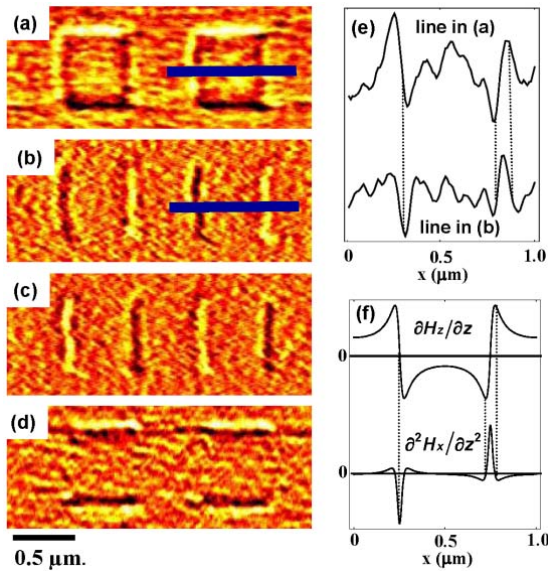


Nano-scale Magnetic Imaging and Synthesis of Functional Magnetic Thin Films for Advanced Magnetic Devices

Hitoshi Saito, Satoru Yoshimura, Genta Egawa

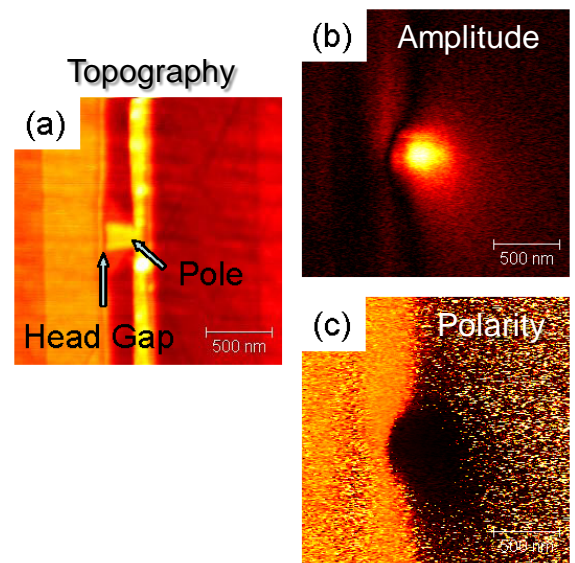
We developed new magnetic force microscopy that first enable to measure (A) two-dimensional vector magnetic field imaging and (B) alternating magnetic field imaging with high spatial resolution by using magnetic field inducing frequency modulated oscillation. We applied these techniques to evaluate (C) synthesized functional magnetic thin films for advanced magnetic devices.

(A) Two-dimensional Vector Magnetic Field Imaging



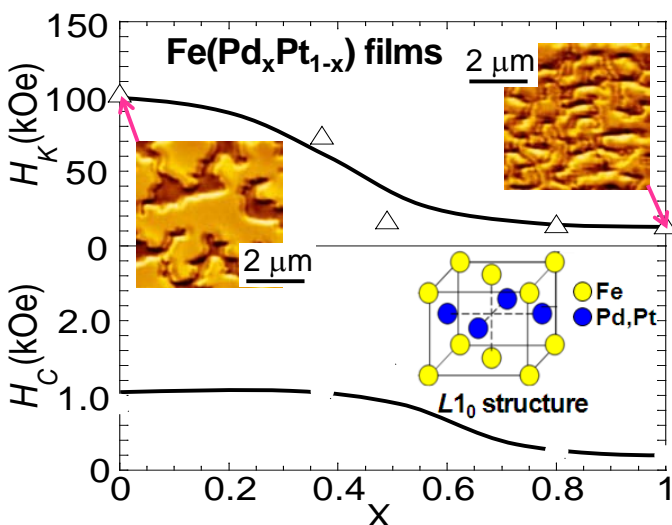
Analysis of **Perpendicular Recording Media**.

(B) Alternating Magnetic Field Imaging up to a few MHz

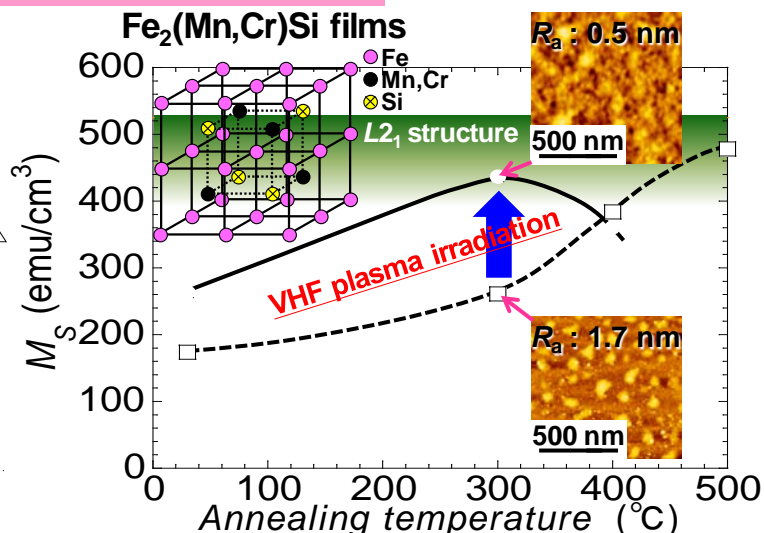


Analysis of **Magnetic Writing Head**.

(C) Synthesis of Functional Magnetic Thin Films



MRAM application : Control of magnetic properties and domain size.



Magnetic Reading Head application : Reduction of $L2_1$ ordering temperature and surface roughness.