

[S-03]

Magnetic domains in self-assembled Fe islands on W(110)

T.-H. Kim, Y.J. Song, J.H. Choi, S.J. Kahng*, and Y. Kuk

School of Physics, Seoul National University, *Dept. of Physics, Korea University

Understanding of magnetic nanostructures is needed to downsize recording bits, magnetic sensors, and spintronic devices. Spin-polarized scanning tunneling microscopy (SPSTM) is the most capable tool to provide nanometer scale topographic and magnetic images simultaneously. The differential conductance on spatially varying magnetization produces magnetic images in SPSTM.

We have constructed SPSTM and mapped magnetic contrast in self-assembled Fe islands on W(110) in nanometer scale. It was found that Fe grows in Stranski-Krastanov growth mode, as shown in Fig. 1(a) for the Fe film grown at 300K. Using magnetized Fe coated W tip, we measured the magnetic contrast image of Fe islands as shown in Fig. 1(b). In this differential conductance image, single domain islands with two distinct brightness are visible as in Fig. 1(b). We will discuss the merit and limit of SPSTM.

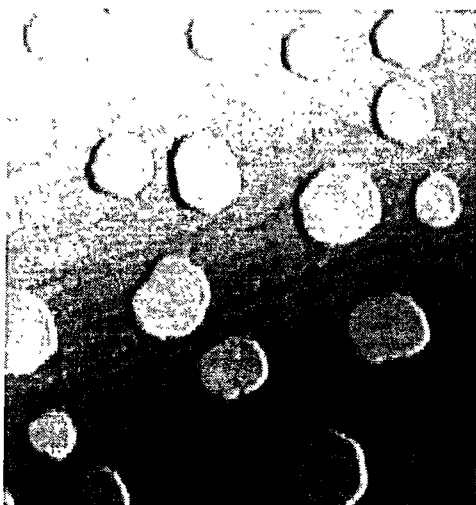


Fig. 1(a)

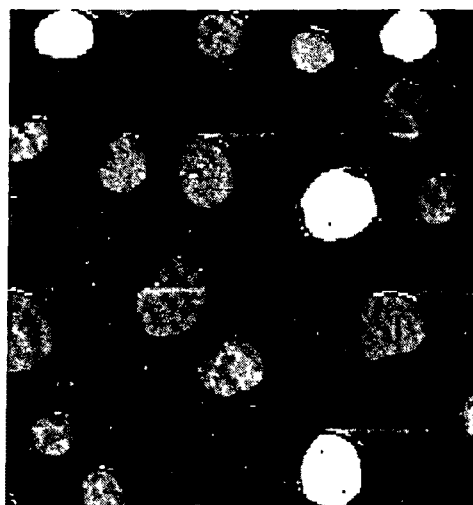


Fig. 1(b)