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## **Ion irradiation induced evolution of magnetic behavior in multilayers**

Ion irradiation of magnetic multilayers shows interesting effects. In this talk I will consider a multilayer system, such as a Pt/C multilayer where each layer is about 2 nm thick. This is not a magnetic multilayer; however it contains Fe atoms at a small concentration. We follow ion beam induced migration of Fe impurity atoms in the Pt/C multilayer by the X-ray standing wave (XSW) technique. The multilayer system has been irradiated with 2 MeV Au ions. We find that Fe atoms migrate from C- to Pt-layers, forming FePt ferromagnetic nanoparticles. As a consequence, an ion beam induced nonmagnetic to ferromagnetic transformation is revealed by magneto-optical Kerr effect (MOKE) measurements. With increasing ion fluence, we find a gradual increase of the coercive field in the magnetic hysteresis loop. We try to correlate this with the gradual concentration increase of Fe in the Pt-layers due to migration of Fe from C- to Pt-layers.