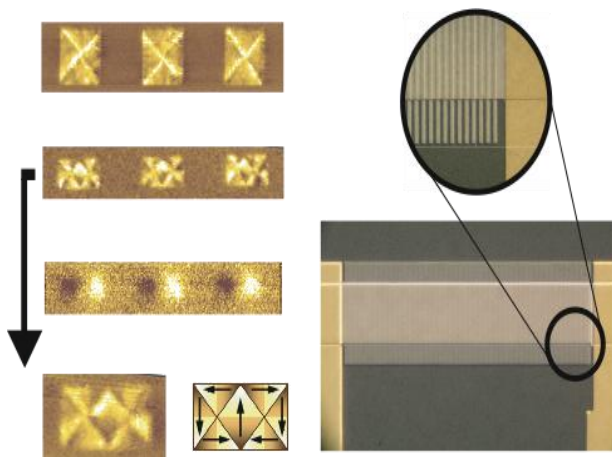
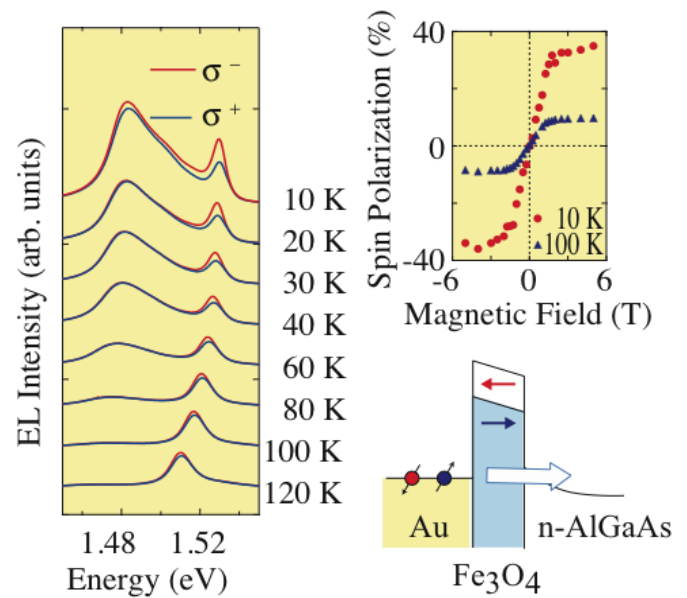


Our current interest orients towards a full understanding of the basic physics underlying spin injection, detection, and manipulation, with a view to developing a major new direction in electronics – so called spintronics. In order to inject and detect electron spins, we employ a combined optical approach such as optical spin orientation and circular polarization analysis of electroluminescence in ferromagnet/semiconductor heterostructures. Electric manipulation of magnetic domain structures using a ferromagnet/ferroelectrics heterointerface also meets our target. We envisage that spintronics leads to the prospect of a vastly range of design possibilities for electronic devices where magnetic nanostructures has now entered in a very fundamental manner.



Magnetic domain structures and a typical spin injection micro device.



Circularly polarized electroluminescence in a spin injection condition using a ferromagnetic material/semiconductor heterostructure.