

Abstract: In these diploma thesis magnetically ordered materials are studied with the prospect of their application in spintronics. Specifically, we investigated metallic alloy FeRh, which undergoes a magnetic phase transition from antiferromagnetic phase to ferromagnetic one around 100°C. This phenomenon can be readily used in memory devices. Laser spectroscopy is used as a nondestructive method without need of any electrical contacts. Magnetic properties of FeRh are studied by magneto-optical effects including quadratic magnetic linear dichroism. The measured polarization rotations are of the order of milliradians, therefore, the detection is realized by an optical bridge. At first, we concentrated on discriminating of various magneto-optical effects from each other. The second part is focused on the phase transition induced by different means. Firstly, by heating the whole sample, secondly by illuminating the sample locally by continuous laser.