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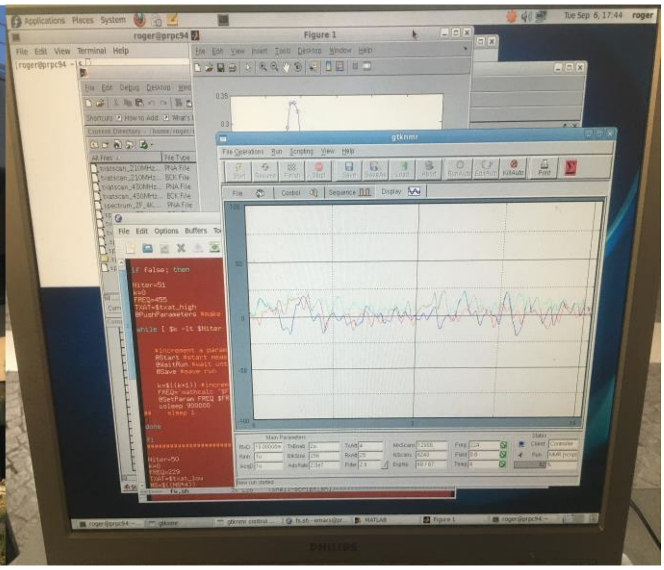
From 6 September 2016 to 13 September 2016 I was visiting Department of Physics and Earth Sciences "Macedonio Melloni", Parma University, Italy. The host institution is known as a place of excellence in research, teaching, and education, providing a stimulating environment. Under supervision of professor Giuseppe Allodi from Nuclear Magnetic Resonance Laboratory I improved my skills in performing NMR experiments, particularly in presence of the external magnetic field. I also learned how to determine transverse (spin-spin) relaxation time T_2. Nuclear Magnetic Resonance (NMR) belongs to the advanced characterization techniques of magnetic materials. Due to its complexity, there are only few laboratories in the world actively using this method in application to magnetic materials. Exchanging experiences and maintaining good relationships with other similar laboratories is essential to achieve progress in the use and refinement of this unique research tool. The expected exchange of the know-how was beneficial for both sides.



During my stay I performed ^{55}Mn Nuclear Magnetic Resonance on epitaxial ferromagnetic thin films (300 nm) of Mn_5Ge_3 and $Mn_5Ge_3C_{0.2}$ in external magnetic field. All measurements have been carried out at liquid helium temperature and the external magnetic field (0-2.5 T) was applied both in sample plane as well as perpendicular to it. In the crystal structure of Mn_5Ge_3 there are two magnetically and structurally non-equivalent sites of Mn atoms in those compounds (4 Mn_1 at 4d sites and 6 Mn_2 atoms at 6g sites), resulting in the two NMR lines: one originating from Mn_1 around 210 MHz and the second one around 430 MHz originating from Mn_2 atoms. Doping with carbon leads to a new NMR line, observed around 345 MHz. The aim of experiments performed in Parma was to monitor the NMR line position vs. external field (in-plane and perpendicular), and to check the behaviour of the new line (due to carbon doping) in magnetic field. The second goal was to measure the relaxation time and to check the intensity ratio between the two NMR lines in pristine Mn_5Ge_3 film in magnetically saturated state.

My visit to Parma University was very satisfying and fruitful. The experience in carrying out the NMR experiment in presence of magnetic field will be very valuable in view of the prospective installation of such system in the NMR laboratory in Warsaw. Furthermore this visit will hopefully start a new cooperation between scientists from Parma and from Warsaw. I would like to thank prof. Giuseppe Allodi and professor Roberto De Renzi for their assistance during my stay at Parma University.