

MUONS FOR TIME-DEPENDENT STUDIES IN MAGNETISMDANIEL ANDREICA¹

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Abstract. μ SR (muon spin rotation/relaxation/resonance) spectroscopy uses implanted muons to probe properties of matter at the microscopic level. It is a relatively new experimental method, successfully employed for the study of the magnetic properties of matter.

This lecture will introduce you the μ SR method/technique: muon properties/production, time window, experimental set-up, and describe the advantages and limitations of μ SR compared with similar experimental methods (NMR, for example). You will learn about the different types of μ SR beams (continuous and pulsed) and about the time scales accessible for each of these beams. The classification of the μ SR beams according to their energy (from low energy to high energy) will also be discussed.

The rest of the presentation will focus on how one can use μ SR for time dependent studies in magnetism. Several examples of experimental results will be presented and discussed together with the different types of relaxation functions employed for the fit of the experimental data.

Students are encouraged to read lectures from the ISIS web-site:

<http://www.isis.stfc.ac.uk/groups/muons/muon-training-school/muon-training-school-201010986.html>

especially the two introductory chapters: "Introduction to μ SR" and "Introduction to Relaxation Functions" by Stephen Blundell, who will also be present at this summer school.

¹ Babes-Bolyai University, Faculty of Physics, 400084 Cluj-Napoca, Romania. E-mail: daniel.andreica@phys.ubbcluj.ro