

Scientific supervisor	
Name	Stanisław Baran
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Department	Department of Solid State Physics
Laboratory	Of Advanced Magnetic Materials and Superconductivity (C-0-17)
Group webpage	http://www.zfcs.if.uj.edu.pl/magnetic-research
Proposed research topic	
<i>Investigation of magnetic properties and phase transitions in new materials</i>	
Short description (< 1000 characters)	
<p>Student will learn how to operate Physical Property Measurement System (PPMS), which is present in leading world laboratories. The current configuration enables investigation of various physical properties of miligram samples in wide temperature range (1.9-400 K), pressure up to 1 GPa and magnetic field up to 9 T. The following measurements are available: electrical resistivity, specific heat, magnetic susceptibility (dc and ac methods) and magnetization. The PPMS is equipped with helium reliquefier operating in a closed circuit, which makes it independent of the supply of liquid helium. Student will be involved in sample preparation as well as in running the measurements.</p>	
	
Main research tool	
Physical Property Measurement System (PPMS)	
https://www.qdusa.com/products/ppms.html	
Additional requirements to the candidate	
Basic knowledge in electricity and magnetism, thermodynamics, quantum mechanics. Interest in experimental research.	
Possibility to continue student internship in the form of:	
Diploma thesis (master's or bachelor's degree)	X
PhD study	X