



Adam Mickiewicz University in Poznań

Doctoral School of Exact Sciences AMU

Metallic glasses and other non-crystalline solids: introduction, properties, perspectives

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Scientific lectures

Field of science	Physics/Materials Science	
Teaching method	Lectures	
Language	English (or Polish)	
Numbers of hours	15	
Aims of the course	The course aims to introduce the topic of metastable metallic systems with an emphasis on metallic glasses and non-crystalline alloys, including a description of their unique physical properties and recent achievements in the field.	
Course contents	Structural disorder, amorphous structure, non-crystalline solids, devitrification, crystallization, glass-forming ability, radial distribution function, short-range order structural relaxation, magnetism in metallic glasses and nanocrystalline alloys, metallic nanoglasses	
Prerequisites and co-requisites	basics in physics (e.g. crystallography, thermodynamics (classical), magnetism)	
Learning outcomes		
On completion of the course PhD candidates will be able to:		Assessment mode
<p>Know the basic features of metallic glasses and understand physical phenomena e.g. vitrification/devitrification, glass-forming ability, structural relaxation.</p> <p>Know basic experimental techniques and theoretical models.</p> <p>Understand the origin of unique properties (e.g. magnetic) of metallic glasses and other structurally metastable metallic alloys.</p> <p>Know and understand the potential applications of such systems.</p> <p>E_W01, E_W02</p>		exam
Literature	Literature will be recommended during the course. Basics: e.g. F.E. Luborsky, Amorphous metallic alloys, Butterworth-Heinemann Ltd. (1983).	
Additional information	The course content may be slightly changed depending on the real progress and needs of the attendees.	