

Titlu proiect: Oxide thin films and nanocomposite structures with tunable properties for advanced applications

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Manager proiect: Iacomî Felicia

Lista rezultate

Nr. crt.	NUME AUTORI	TITLUL ARTICOLULUI/ CĂRȚII/ COMUNICĂRII ȘTIINȚIFICE	REVISTA / VOLUMUL/EDITURA IN CARE A APARUT / CONFERINȚA LA CARE S-A COMUNICAT	ANUL PUBLICĂRII/ COMUNICĂRII
ARTICOLE ISI				
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ARTICOLE ALTE BAZE DE DATE				
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CARTI				
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COMUNICĂRI ȘTIINȚIFICE NATIONALE				
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COMUNICĂRI ȘTIINȚIFICE INTERNAȚIONALE				
1	Iacomî F., et. al.	Structural and functional properties of magnesium ferrite nanoparticles	CMR-2017, JINR, Dubna, Oral report.	2017
2	Tropin T.V., et. al.	Neutron reflectometry study of glass transition in thin films of polymer nanocomposites	International Conference "Condensed Matter Research at the IBR-2", CMR-2017, JINR, Dubna, Russia, oral report	9-12 October, 2017
ATLASE, DICȚIONARE DE SPECIALITATE				
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CERERI BREVET DE INVENȚII/BREVET OBTINUT				
ALTE rezultate				
1	Functional oxide thin films and nanocomposites are an integral part of modern technology. The project's focus is the design, elaboration and characterization of some new oxide and complex oxide thin films and nanocomposites, environmental friendly, for innovating devices. The project theme belongs to a prioritized research domain of nanotechnology and advanced materials. The project target is to establish the optimum chemical composition and morphology of oxide compounds and oxide nanocomposites in order to control certain functionalities (the electrical, magnetic, optical, photocatalytic, sensing and bioactivity properties) and the optimum synthesis and deposition conditions to assure their reproducibility. The project takes into			

consideration low cost synthesis and deposition methods (sol-gel, spin-coating), but also other physical deposition methods (rf sputtering, pulsed laser ablation).

The development of new functional oxide thin films and composites provide an important milestone to improve the application performance in different fields such as optoelectronics, spintronics dentistry, conversion and storage devices, photovoltaic devices, photocatalysis, etc. If the present project will achieve its goals, it will have a high economic impact in the near future. The properties and functions of the oxide thin films and nanocomposites depend strongly on their microstructures. Therefore, a careful design is required in order to obtain higher quality, uniform morphology on the nanoscale, tailored for application properties. The mechanism of properties enhancement is relatively uncertain and it need to be studied systematically from both theoretical and experimental aspects. In this context, our proposal has the potential to offer knowledge and results with large impact in its scientific field as well as novel materials for a very demanding market.

Within the project's scope the methods of synthesis of several thin films was elaborated, the respective samples prepared and characterized by complementary methods. The meetings between Russian and Romanian responsables resulted in discussions on ways of applying neutrons for study of the respective samples, as compared to certain X-ray experiments performed elsewhere. The meeting took place at the International Conference of the IBR-2 users, CMR@IBR-2 in Autumn, 2017. In comparison with other project, the most suitable for measurements at the GRAINS spectrometer, as selected, are the GNPs thin films, which resulted in the submitted and accepted proposal in 2018.

**Director proiect,
Iacomi Felicia**

