



Roxana Capu

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Address: Bd. Vasile Parvan, 4, Facultatea de Fizica, 300223, Timisoara, Romania
(Work)

WORK EXPERIENCE

26/02/2024 – CURRENT Timisoara, Romania

LECTURER THE DEPARTMENT OF PHYSICS, WEST UNIVERSITY OF TIMISOARA

01/02/2022 – 23/02/2024 Timisoara, Romania

POSTDOCTORAL FELLOW THE DEPARTMENT OF PHYSICS, WEST UNIVERSITY OF TIMISOARA

The research work involves the study of newly-discovered high entropy oxides Mn-based in crystalline form and their proximity effect with high T_c superconductors YBa₂Cu₃O₇. The carried out activities include the sample growth, characterization and measurements using synchrotron and accelerator based techniques.

01/11/2016 – 30/06/2021 Viligen, Switzerland

UNIVERSITY RESEARCH ASSISTANT LABORATORY FOR NEUTRON SCATTERING AND IMAGING, PAUL SCHERRER INSTITUTE

My doctoral thesis is based on the study of superconducting and magnetic proximity effect in epitaxial (single crystalline) heterostructures composed of high T_c superconductor (YBa₂Cu₃O_{7- δ}) and ferromagnetic/antiferromagnetic manganite (RE_{1-x}(Ca_{1-y}Sr_y)_xMnO₃). I have expertise in growth of epitaxial thin films along with their electrical, magnetic, compositional and structural characterization. I have also worked extensively on synchrotron and accelerator based techniques for fundamental study of charge density wave, different charge ordering and magnetic profiling in proximity-induced environments. Supervisors: Prof. Dr. Christof Niedermayer and Prof. Dr. Christian Bernhard (UniFR).

01/11/2015 – 30/09/2016 Iasi, Romania

RESEARCH ASSISTANT THE FACULTY OF PHYSICS, "ALEXANDRU IOAN CUZA" UNIVERSITY

Study of spin transition molecular magnets with Ising-like and mechanoelastic models. Project conducted by Prof. Dr. Cristian Enachescu.

03/06/2015 – 02/09/2015 Manchester, United Kingdom

INTERNSHIP ERASMUS PLACEMENT INORGANIC CHEMISTRY GROUP, THE UNIVERSITY OF MANCHESTER

Experimental and theoretical research for the characterization of chemical compounds CoPc and Cr₇Ni with Electron Paramagnetic Resonance (EPR) spectroscopy in Continuous and Pulsed Wave Mode in the Inorganic Chemistry Group supervised by Prof. Dr. Floriana Tuna.

01/08/2014 – 01/10/2014 Fribourg, Switzerland

SUMMER INTERNSHIP, MANEP ADVANCEMENT OF WOMEN MAGNETISM AND SUPERCONDUCTIVITY GROUP, THE UNIVERSITY OF FRIBOURG

The study involved the growth of epitaxial thin films composed of $\text{La}_{2/3}\text{Sr}_{1/3}\text{MnO}_3/\text{YBa}_2\text{Cu}_3\text{O}_7/\text{Alq}_3/\text{Co}$ spin-valves. The used growth techniques are pulsed laser deposition (PLD) and physical vapor deposition, followed by the characterization of the obtained samples and spin-valves with magneto-electronic transport, magnetization, AFM and X-ray and electron diffraction under the supervision of Prof. Dr. Christian Bernhard.

17/06/2013 – 28/06/2013 Iasi, Romania

INDUSTRIAL INTERNSHIP S.C. ELECTRA S.R.L.

The internship involved the observation of the main steps in the production of printed circuits, in different departments.

15/06/2012 – 15/09/2012 York, United Kingdom

INTERNSHIP ERASMUS PLACEMENT COMPUTATIONAL MAGNETISM GROUP, UNIVERSITY OF YORK

Exchange bias study by atomistic spin dynamics simulations on $\text{IrMn}_3/\text{CoFe}$ bilayers using the VAMPIRE Code developed by Prof. Dr. Richard Evans. Head of the group: Prof. Dr. Roy Chantrell.

07/06/2011 – 07/07/2011 Iasi, Romania

INTERNSHIP INSTITUTE OF TECHNICAL PHYSICS

In my first research internship, I was introduced in the study of different methods and techniques for obtaining thin films and obtained information about their utility and applications, under the guidance of Dr. Nicoleta Lupu.

● EDUCATION AND TRAINING

01/11/2016 – 30/06/2021 Fribourg, Switzerland

PH.D STUDENT Magnetism and Superconductivity Group, University of Fribourg

Thesis title: *"Resonant X-ray diffraction/absorption and polarized neutron reflectivity studies of electronic and magnetic interface and proximity effects $\text{YBa}_2\text{Cu}_3\text{O}_7/\text{manganite}$ multilayers"*.

My doctoral thesis is based on the study of superconducting and magnetic proximity effect in epitaxial (single crystalline) heterostructures composed of high T_C superconductor ($\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$) and ferromagnetic/antiferromagnetic manganite ($\text{RE}_{1-x}(\text{Ca}_{1-y}\text{Sr}_y)_x\text{MnO}_3$). I have expertise in growth of epitaxial thin films along with their electrical, magnetic, compositional and structural characterization. I have also worked extensively on synchrotron and accelerator based techniques for fundamental study of charge density wave, different charge ordering and magnetic profiling in proximity-induced environments. Supervisors: Prof. Dr. Christian Bernhard and Prof. Dr. Christof Niedermayer (PSI).

Address Chemin du Musée 3, 1700, Fribourg, Switzerland | **Website** <https://www.unifr.ch/phys/en/>

01/10/2014 – 05/07/2016 Iasi, Romania

MASTER "ADVANCED MATERIALS. NANOTECHNOLOGIES" Department of Physics, "Alexandru Ioan Cuza" University

Thesis title: "Study of cluster evolution in Ising-like systems". Grade 10/10, Supervisor: Prof. Dr. Cristian Enachescu

Address Carol I, 700495, Iasi, Romania | **Website** <https://www.phys.uaic.ro/> | **Final grade** 10/10

01/10/2010 – 05/07/2014 Iasi, Romania

PHYSICS ENGINEER Department of Physics, "Alexandru Ioan Cuza" University

Thesis: "Magnetization processes for studying systems with Exchange Bias and crossover compounds". Grade: 10/10, Supervisor: Prof. Dr. Cristian Enachescu.

Address Carol I, 700495, Iasi, Romania | **Website** <https://www.phys.uaic.ro/> | **Field of study** Technological Physics |

Final grade 9.93/10

01/10/2010 – 05/07/2016 Iasi, Romania

PSYCHO-PEDAGOGICAL MODULE I AND II Faculty of Psychology and Education Sciences,
"Alexandru Ioan Cuza" University

Address Carol I, 715200, Iasi, Romania | **Website** <https://www.psih.uaic.ro/organizare/dppd5/>

15/09/2006 – 15/06/2010 Dorohoi, Romania

HIGH SCHOOL DIPLOMA BACCALAUREATE (9.16/10) "Grigore Ghica" National College

Address Strada Grigore Ghica 41, 715200, Dorohoi, Romania | **Website** <http://colegiulghica.ro/> |

Field of study Mathematics-Informatics | **Final grade** 9.85/10

● LANGUAGE SKILLS

Mother tongue(s): **ROMANIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C2	C1	C1	C1
FRENCH	C1	C1	B2	B2	B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● DIGITAL SKILLS

Microsoft Office, Microsoft Word, Microsoft Excel, Outlook, Facebook, Google | Languages and Software: C+, Python, Origin, Igor Pro

● ADDITIONAL INFORMATION

NETWORKS AND MEMBERSHIPS

- Membership** -Student Member at IEEE Magnetic Society and IEEE Student Branch Iași. (2014-2016)
- Member in Physics Department Council, University of Iasi. (2015-2016)
- Swiss Physical Society (2019-2021)
- Materials with Novel Electronic Properties (MaNEP) (2018- 2021)
- Romanian Society of Physics (SRF) (2022-present)

PROJECTS

15/04/2022 – 14/04/2024

Postdoctoral Research Project Entitled: "Synthesis and characterization of perovskite high entropy oxides and investigation of their proximity effect with high- T_C superconductors"

PN-III-P1-1.1-PD-2021-0238,

Period: 2022-2024,

Grant amount: 50.000 EUR

Financed by UEFISCDI, Romania.

Link <http://quasar.physics.uvt.ro/~apopescu/HEOHTS/>

01/02/2022 – 31/01/2024

UVT Scholarship in the Advanced Postdoctoral Research Program

Period: 2022-2024

Grant amount: 30.000 EUR

Financed by West University of Timisoara, Romania.

COMMUNICATION AND INTERPERSONAL SKILLS

Communication skills -Masterclass "**How to communicate your research**", provided by Dr. Frank Burnet, Emeritus Professor of Science Communication UWE, Bristol, UK in association with British Council Romania. (May 2015)

-Qualification at national finale at international competition FameLab science communication, Bucharest, with the topic "Water's features". (21-st of May 2015)

-Communication courses from European Project "Today's students, tomorrow's experts". The overall project objective is to improve labour market insertion in their relevant professional areas and their skill set by developing the aptitudes of 5,000 students as a result of participation in an integrated program of counselling and guidance. (01.11.2014-06.05.2015)

-14-week program "**Innosuisse Start-up Training Business Concept**" and participated in developing a business project that has been positively evaluated by the jury. (18.09.2019-18.12.2019)

EXPERTISE

Professional Experience and training

- Sample Growth: Solid state chemistry, Pulsed Laser Deposition, Thermal Evaporation- 5 years of experience
 - Characterization: XRD, SEM, SEM-FIB, SEM-EDX, XRF- 3 years of experience
 - Synchrotron and accelerator-based experiments: 6 years of experience
 - X-ray Absorption Spectroscopy: 6 beamtimes (authored 3 successful proposals)
 - Resonant Inelastic X-ray Scattering: 5 beamtimes (co-authored 4 successful proposals)
 - Resonant Elastic X-ray Scattering: 4 beamtimes (authored 2 successful proposals)
 - Polarized Neutron Reflectivity: 5 beamtimes (authored 5 successful proposals)
 - Low Energy Muons: 1 beamtime (authored 1 successful proposal)
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