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Ioan Ardelean

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WORK EXPERIENCE

01/10/2006 – CURRENT Cluj-Napoca, Romania

PROFESSOR TECHNICAL UNIVERSITY OF CLUJ-NAPOCA

Teaching

Teaching activities of lectures, seminars, and laboratory works addressed to the students of the following faculties:
-Faculty of Civil Engineering (Physics);
-Faculty of Machine Building (English and German) (Lectures and seminars of physics);
-Faculty of Electronics Telecommunications and Information Technology (Physics I and Physics II);
-Faculty of Electrical Engineering (Undergraduate course: Physics I and Physics II);
-Faculty of Electrical Engineering (Master course: Fundamentals of nuclear theory);
-Faculty of Materials and Environment Engineering (Master course: Nanoscience and Nanotechnology Investigation Methods)
Guidance activities in Doctoral School (Doctoral supervisor, Materials Engineering) (2 Ph.D. students;
7 theses successfully completed)

Management activities

- **2020-2024: Vice President** of the National Council for Accreditation of University Degrees, Diplomas and Certificates in Engineering and Materials Science, Romania (CNATDCU)
- **Since 2016: Coordinator of the doctorate domains** for Materials Engineering and Environmental Engineering;
- **Organizer** of an international workshop (Alpine NMR Workshop, Transylvanian NMR Workshop: 2004, 2009,2011, 2013, 2016, 2019, 2024);
- **Coordinator and founder** of the NMR Relaxometry and Diffusometry Laboratory

Research and dissemination activities

- Coordinator of 2 international projects;
- Member in the management comity of the COST action CA15209 (EURELAX)
- Coordinator/Director of 8 national projects (UEFISCDI);
- Publication of 76 scientific works (62 ISI publications, 45 as the main author);
- Publication of 3 books (Romanian, single author);
- Publication of 3 book chapters (Royal Soc. of Chemistry, main author)
- Multiple presentations at international conferences (invited, oral, poster).

Address Memorandumului 28, 400114, Cluj-Napoca, Romania | **Website** https://www.utcluj.ro/

01/10/2006 – CURRENT Cluj-Napoca, Romania

PROFESSOR AND PHD SUPERVISOR TECHNICAL UNIVERSITY OF CLUJ-NAPOCA

01/10/2002 – 01/10/2006 Cluj-Napoca, Romania

ASSOCIATED PROFESSOR TECHNICAL UNIVERSITY OF CLUJ-NAPOCA

01/10/1998 – 01/10/2002 Cluj-Napoca, Romania

LECTURER TECHNICAL UNIVERSITY OF CLUJ-NAPOCA

01/10/1990 – 01/10/1998 Cluj-Napoca, Romania

ASSISTENT TECHNICAL UNIVERSITY OF CLUJ-NAPOCA

EDUCATION AND TRAINING

15/09/1985 – 30/06/1989 Cluj-Napoca, Romania
LICENCE IN PHYSICS Universitatea "Babes Bolyai" din Cluj-Napoca

-Mechanical Physics;
-Electricity and magnetism;
-Thermodynamics;
-Statistics;
-Electrodynamics and relativity theory;
-Electronics;
-Programming elements;
-Optics;
- Plasma and Radiation Physics;
-Molecular and nuclear physics;
-Quantum physics;
-Solid body and semiconductor physics;
-Special mathematics for physics;
- Social disciplines.

National classification License in Physics

01/10/1990 – 31/05/2007 Cluj-Napoca, Romania
DOCTOR DEGREE Universitatea "Babes-Bolyai" din Cluj-Napoca

Doctorate in the field Physics/Molecular physics
Ph.D. thesis title: *Modern methods of nuclear magnetic resonance with applications in obtaining information about the structure and dynamics of some molecular compounds.*

01/10/1996 – 31/03/1997 Ulm, Germany
DAAD RESEARCH FELLOWSHIP Ulm University

Research in the field of nuclear magnetic resonance (NMR) techniques.

01/10/1998 – 31/01/1999 Schwaebisch Hall, Germany
GERMAN LANGUAGE CERTIFICATE Goethe Institue

01/02/1999 – 31/03/2001 Ulm, Germany
ALEXANDER VON HUMBOLDT RESEARCH FELLOWSHIP Ulm University

Postdoctoral research in the field of NMR applications in materials science.

01/10/2001 – 30/06/2007 Ulm, Germany
MULTIPLE RESEARCH STAYS AT ULM UNIVERSITY (2-3 MONTHS EACH) Ulm University

LANGUAGE SKILLS

Mother tongue(s): **ROMANIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	B2	B2	B2	B2	B2
GERMAN	B2	B2	B2	B2	B1

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

ORGANISATIONAL SKILLS

Organisational skills

-Coordinator of the doctorate domains for Materials Engineering and Environmental Engineering;

-**Coordinator and founder** of the NMR Relaxometry and Diffusometry Laboratory
-**Organizato**r of **5 international workshops**:

- 1st Transylvanian NMR Workshop, Paltinis, February 25 – March 1, 2004;
- 2nd Transylvanian NMR Workshop, Cluj-Napoca, September 18 – 21, 2009;
- 3rd Transylvanian NMR Workshop, Cluj-Napoca, September 23 – 25, 2011;
- 4th Transylvanian NMR Workshop, Cluj-Napoca, September 27 – 29, 2013;
- Alpine NMR Workshop, Cluj-Napoca, September 23 – 25, 2016;

Member in the scientific committee of 14th International Bologna Conference on Magnetic Resonance in Porous Media (MRPM14), February 18-22, 2018, Gainesville, Florida, USA.
Member in the Senate of the Technical University of Cluj-Napoca (2012-2019);
Chairman of the Research Commission of the Senate of the Technical University of Cluj-Napoca (2012-2016)
Member in the Council of the Faculty of Materials and Environmental Engineering (2008-2016)
Director/Cordinator of more research projetcs:
International projects
1. Director: Institutspartnerschaft UTCN-Universitatea Ulm, Germania, financed by Alexander von Humboldt foundation by international competition (2003-2006; value 51000Euro);
2. Director: Institutspartnerschaft UTCN-Universitatea Tehnica Ilmenau, Germania, financed by Alexander von Humboldt foundation by international competition (2011-2014; value 55000Euro);
3. Member in the management committee of the **COST** action **CA15209** - European Network on NMR Relaxometry: http://eurelax.uwm.edu.pl/
National projects
1. Director: **CNCSIS 411/2004** (financed by the Romanian Ministry for Education and Research) , 1.01.2003-31.12 2005: *Diffusion phenomena in partially saturated porous media investigated by nuclear magnetic resonance*
2. Director: **CERES 4-36/4.11.2004** (financed by the Romanian Ministry for Education and Research), 15.11.2004-15.11.2006: *Principles and unconventional aspects of NMR diffusometry of confined liquids.*
3. Director: **CNCSIS type A/ 1292/2006** (financed by the Romanian Ministry for Education and Research)1.03.2007-15.09.2008: *Dynamics of polar and non-polar molecules under confinement in nanometric and micrometric pores.*
4. Coordinator of the proiect **CEEX MATNANTECH 58/2006-2008**: *NMR studies of molecular dynamics inside polymeric nanocapsules.*
5. Director for UTCN: **PN2-NANOQMED 61-002/2007-2010**: *Obtaining and characterization of new target nano-medicines with naftochinonic active substance.*
6. Director: **PNII ID PCE 3-0238/2011-2014:** *Nuclear magnetic resonance studies of surface effects on dynamics of molecules confined inside porous media with magnetic impurities.*
7. Director: **PED 125/2017-2018:** *Developing and testing of new concrete materials with increased mechanical strength and lower permeability***.**
8. Director: **PN-III-P4-ID-PCE-2020-0533:** New cement-based nanocomposite materials for 3D printing applications.

COMMUNICATION AND INTERPERSONAL SKILLS

Communication and interpersonal skills

-communication skills in English and German acquired as the result of my research stays in foreign laboratories;
- communication skills with students, due to long teaching and guidance activities;
- collaboration skills with various research groups in the country and abroad.

JOB-RELATED SKILLS

Job-related skills

Mentoring, evaluation and communication skills:
- I have prepared and examined thousands of undergraduate or master students over the years;
- I have successfully coordinated **8** doctoral theses
- I participated in the advisory boards of several Ph.D. students;
- I did dozens of presentations at international conferences (oral or poster);
- I evaluated dozens of research projects (UEFISCDI and International)

Publications

Books/Book chapters
1. I. Ardelean, R. Kimmich, “Beyond the Limits of Conventional Pulsed Gradient Spin Echo (PGSE) Diffusometry: Generalization of the Magnetization-grating Principle”, in “Diffusion NMR of Confined Systems: Fluid Transport in Porous Solids and Heterogeneous Materials”; Edited by Royal Society of Chemistry 2016; pag. 260-293; DOI:10.1039/9781782623779
2. I. Ardelean, Rezonanta Magnetica Nucleară pentru ingineri, Editura U.T. Press, Cluj-Napoca, 2013, ISBN: 978-973-662-905-1 (it can be provided for free, on request)

3. I. Ardelean, “Introductory quantum mechanics” (in Romanian), Editura U.T.Press, Cluj-Napoca, 2002, ISBN 973-8335-24-8(199 p)
4. I. Ardelean, “Physics for engineers” (in Romanian), Editura U.T.Press, Cluj-Napoca, 2005 (222 p)
5. I. Ardelean, “Applications of Field-cycling NMR Relaxometry to Cement Materials”, in “Field-Cycling NMR Relaxometry: Instrumentation, Model Theories and Applications”, Edited by Royal Society of Chemistry 2018; pag. 462 – 489; http://dx.doi.org/10.1039/9781788012966

5 reprezentative WOS publications

1. I. Ardelean and R. Kimmich “Principles and unconventional aspects of NMR diffusometry”, in “Annual Reports on NMR Spectroscopy”, vol. 49, pag. 43 (Ed. G.A.Webb), Academic Press, 2003
2. I. Ardelean, G.Farrher, C.Mattea and R.Kimmich, Nuclear magnetic resonance study of the vapor phase contribution to diffusion in silica glasses with micrometer pores partially filled with liquid cyclohexane and water, J. Chem. Phys.120, 9809-9816 (2004)
3. S. Muncaci, C. Mattea, S. Stapf, I. Ardelean, Frequency-dependent NMR relaxation of liquids confined inside porous media containing an increased amount of magnetic impurities, Magn. Reson. Chem. 51, 123-128(2013).
4. C. Cadar, C. Cotet, L. Baia, L. Barbu-Tudoran, I. Ardelean, Probing into the mesoporous structure of carbon xerogels via the low-field NMR relaxometry of water and cyclohexane molecules, Microporous Mesoporous Mater., 251, 19-25(2017).
5. A. Bede, A. Scurtu, I. Ardelean, NMR relaxation of molecules confined inside the cement paste pores under partially saturated conditions, Cem. Conc. Res. 89, 56-62 (2016).

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