

PERSONAL INFORMATION

IOAN TURCU



Donat, 67-103, Cluj-Napoca, 40293, Romania.

☎ (+4)0264-584037 📠 (+4)0731030063

✉ iturcu@itim-cj.ro

🌐 <http://www.itim-cj.ro/en/department-molecular-and-biomolecular-physics>

Sex M | Date of birth 07 03 1955 | Nationality romanian

WORKPLACE

National Institute for Research and Development of Isotopic and Molecular Technologies, INCDTIM Cluj-Napoca, Romania.

WORK EXPERIENCE

2005 - present / Senior researcher I / Head of „Molecular & Biomolecular Physics” Department / National Institute for Research and Development of Isotopic and Molecular Technologies, Cluj-Napoca, Romania;

2000 - 2005 / Senior researcher I / Head of "Biophysics & Environmental Physics” Laboratory / National Institute for Research and Development of Isotopic and Molecular Technologies, Cluj-Napoca, Romania;

1983 - 2000 / Scientific researcher / National Institute for Research and Development of Isotopic and Molecular Technologies, Cluj-Napoca, Romania

1980 - 1983 / Scientific researcher / National Institute of Material Physics, Bucharest - Magurele, Romania

EDUCATION AND TRAINING

1992-1996 PhD in physics, Institute of Atomic Physics, Bucharest – Măgurele, Romania;

1979-1980, Master degree in physics , Bucharest University; Romania;

1975-1979 Bachelor of science degree in physics, Bucharest University, Romania;

1970-1974 "Emil Racoviță" High School, Cluj-Napoca, România

PERSONAL SKILLS AND COMPETENCES

Mother tongue Romana

Other language

	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C1	C2	C2	C1
French	B1	C2	A1	A1	A1

- President of the INCDTIM Research Council (2000 – 2008; 2014 – 2018; 2018 - 2022);
- Member of Romania - JINR Committee (2019 – 2023);
- Member of the National Research Council - President of the Commission "Exact Sciences" (2015 – 2016);
- President of the Romanian Society for Pure and Applied Biophysics (2009 – 2013);
- Vice-president of the Executive Committee of the Romanian Society of Physics (2017 – 2020);
- President of the Section: "Biophysics and Medical Physics" of the Romanian Society of Physics (2009 – 2017);
- Representative of Romania to EBSA (European Biophysical Societies Association) (2009 – 2013);
- Head of „Molecular & Biomolecular Physics” Department / Research Team Leader "Molecular & Biomolecular Technologies" (2009 – present).

Areas of competence

- The effects of strong electric fields on biological cells:
 - Dielectrophoresis and electrorotation;
 - Electropermeabilization of biomembranes;
 - Electrofusion of biological cells;
- New methods of diagnosis based on small angle scattering of laser radiation on biological cells;
- Self-assembly of supramolecular systems, molecular recognition processes.

Areas of Interest

- Molecular recognition and self-organizing processes;
- Self-assembled supramolecular systems;
- Fabrication and characterization of supramolecular structures with controlled architecture and functionality;
- Molecular devices, molecular electronics.

Coordinated research projects
Director / Project Responsible
(selection - last years)

1. Complex projects completed in consortia CDI (FPRD) PN-III-P1-1.2-PCCDI-2017-0010, 2018 – 2020 “*Emerging molecular technologies based on micro and nano-structured systems with biomedical applications*”; – project director ;
2. Complex projects completed in consortia CDI (FPRD) PN-III-P1-1.2-PCCDI-2017-0178, 2018 - 2020 Underwater geological structures favorable to the generation and accumulation of biogenic methane - associated geobiochimic processes (uBioGas) - project responsible;
3. Complex projects completed in consortia CDI (FPRD) PN-III-P1-1.2-PCCDI-2017-0387, 2018 - 2020 Emerging technologies for the industrial capitalization of 2D structures (graphene and nongraphenic) - project responsible;
4. PNII-ID-PCCE-2011-2-0027, 2012 – 20016 *Ion sensing and separation through modified cyclic peptides, cyclodextrins and protein pores* - project responsible;
5. Large infrastructure program, 2008 – 2012 “*Molecular and Biomolecular Physics Department Upgrading*” 6 500 000 EURO – project director;
6. PN II ID_32/2008 , 2008 – 2010 *Organization of the coding sequence of the microbial genome; autoregressive modeling* – project director;
7. CEEX Nr. 2-CEX-06-11-93/2006, 2006 – 2008 *Self-assembled bidimensional supramolecular structures based on functionalized organic molecules* – project director;
8. CEEX 11/2005: NANOSIM, 2005 – 2008 *Transport phenomena and structure formation at the micro/nanometer scale in biomedicine and materials science* - project responsible;
9. CEEX 62/2005 MUL-TRO, 2005 – 2008 *Combined and complex study of the platelet in myeloproliferative disorders and myelodysplastic syndromes* - project responsible;
10. CEEX Nr. 2CEX06-11-50/2006 , 2006 – 2008 *New coronands and cryptands with supramolecular properties: design, synthesis, structural analysis and potential applications in molecular electronics* - project responsible.

Book chapters

1. L. Buimaga–Iarinca, D. Marconi, A. Colniță, C. Morari, **I. Turcu**, *Molecular Devices: From Rational Design to Functional Units, Nanotechnologies and Nanomaterials for Various Applications*, Eds. Maria Zaharescu, Marius Enăchescu, Dan Dascălu, **Romanian Academy Publishing House**, București, ISBN 978-973-27-2954-8 (2018) 26 – 42.
2. A. Colniță, D. Marconi, **I. Turcu**, “A Review - Application of Molecular Beam Epitaxy”, **Biophysics for Biomedical and Environmental Sciences**, Ed. Monica Florescu, **Transilvania University Press**, ISBN 978-606-19-0768-7 (2016) 141-148.
3. D. Marconi, A. Colniță, **I. Turcu**, “A Hybrid Top-Down, Bottom-Up Approach to Fabrication of High Quality Interdigitated Electrodes”, **Biophysics for Biomedical and Environmental Sciences**, Ed. Monica Florescu, **Transilvania University Press**, ISBN 978-606-19-0768-7 (2016) 149-160.
4. **I. Turcu**, “Quasi-ballistic light scattering on particulate media” in **Progress in Optics Research**, ed. Maximilian N. Schulz, **Nova Science Publishers, Inc. New York**, ISBN: 978-1-60456-110-4 (April 15, 2009) 103-128.

Published Scientific papers

66 published scientific papers, mostly in ISI-ranked journals and about 150 scientific contributions to specialized Congresses and Conferences;

Scientific papers
(selection - last years)

1. Alia Colniță, Daniel Marconi, Radu Tiberiu Brățfălean, **Ioan Turcu***, *Single-step fabrication of homoepitaxial silicon nanocones by molecular beam epitaxy*, **Appl. Surf. Sci.** **436** (2018) 1163 – 1172, doi: [10.1016/j.apsusc.2017.12.136](https://doi.org/10.1016/j.apsusc.2017.12.136)
2. M. Bacalum, L. Janosi, F. Zorila, A.-M. Tepes, C. Ionescu, E. Bogdan, N. Hadade, L. Craciun, I. Grosu, **I. Turcu***, Mihai Radu*, *Modulating short tryptophan- and arginine-rich peptides activity by substitution with histidine*, **Biochimica et Biophysica Acta (BBA) - General Subjects** (2017) doi: [10.1016/j.bbagen.2017.03.024](https://doi.org/10.1016/j.bbagen.2017.03.024);
3. F. A. Martin, D. Marconi, S. Neamtu, T. Radu, M. Florescu, R. Turcu, C. Lar, N. D. Hădade, I. Grosu, **I. Turcu***, *“Click” access to multilayer functionalized Au surface: A terpyridine patterning example*, **Mater. Sci. Eng. C Mater. Biol. Appl.** , **75**, 1343-1350 (2017) doi: [10.1016/j.msec.2017.03.033](https://doi.org/10.1016/j.msec.2017.03.033);
4. A. Colniță, D. Marconi, **I. Turcu**, *Fabrication of Interdigitated Electrodes Using Molecular Beam Epitaxy and Optical Lithography*, **Anal. Lett.** **49 (3)** (2016) 378-386. doi: [10.1155/2014/514508](https://doi.org/10.1155/2014/514508)
5. D. Marconi, A. Colniță, **I. Turcu**, *The Influence of Deposition Rate on the Structure and Morphology of Gold/Silicon(111) Growth by Molecular Beam Epitaxy*, **Anal. Lett.** **49 (3)** (2016) 400-410 doi: [10.1080/00032719.2015.1022823](https://doi.org/10.1080/00032719.2015.1022823)
6. A. Calborean, F. Martin, D. Marconi, R. Turcu, I.E. Kacso, L. Buimagarlarinca, F. Graur, **I. Turcu**, *Adsorption mechanisms of L-Glutathione on Au and controlled nano-patterning through Dip Pen Nanolithography* Mater. Sci. Eng. C Mater. Biol. Appl. **57** (2015) 171–180 doi: [10.1016/j.msec.2015.07.042](https://doi.org/10.1016/j.msec.2015.07.042);
7. Silvia Neamtu, Mihaela Mic, Mircea Bogdan, **Ioan Turcu**, *The artifactual nature of stavudine binding to human serum albumin. A fluorescence quenching and isothermal titration calorimetry study*, **J. Pharmaceut Bomed. Anal.** **72**, (2013) 134-138, doi: [10.1016/j.jpba.2012.09.023](https://doi.org/10.1016/j.jpba.2012.09.023);
8. **Ioan Turcu** and Mihaela Mic, *Size dependence of molecular self-assembling in stacked aggregates. 2. Heat exchange effects*, **J. Phys. Chem. B**, **117 (30)** (2013) 9083–9093, doi: [10.1021/jp403768x](https://doi.org/10.1021/jp403768x);
9. **Ioan Turcu**, Mircea Bogdan, *Size dependence of molecular self-assembling in stacked aggregates. 1. NMR investigation of ciprofloxacin self-association*. **J. Phys. Chem. B** **116**. (2012) 6488-6498, doi: [10.1021/jp3034215](https://doi.org/10.1021/jp3034215);
10. Attila Bende Ion Grosu and **Ioan Turcu**, *Molecular Modeling of Phenothiazine Derivatives: Self-Assembling Properties* **J. Phys. Chem. A** **114 (47)**, (2010) 12479–12489, doi: [10.1021/jp105012g](https://doi.org/10.1021/jp105012g);
11. **Ioan Turcu**, Radu Bratfalean and Silvia Neamtu, *Narrowly peaked forward light scattering on particulate media II. Angular spreading of light scattered by polystyrene microspheres* **J. Opt. A: Pure Appl. Opt.** **10** (2008) 075007 (7pp) doi: [10.1088/1464-4258/10/7/075007](https://doi.org/10.1088/1464-4258/10/7/075007);
12. **Ioan Turcu** and Radu Bratfalean, *Narrowly peaked forward light scattering on particulate media I. Assessment of the multiple scattering contributions to the effective phase function* **J. Opt. A: Pure Appl. Opt.** **10** (2008) 015002. (8pp) doi: [10.1088/1464-4258/10/01/015002](https://doi.org/10.1088/1464-4258/10/01/015002);

ADDITIONAL INFORMATION

- The bifurcation theory describing the electrorotation of microparticles developed in a series of papers published in **J. Phys. A: Math. Gen.** can be found in the literature as "Turcu's Bifurcation Theory" - Thomas B. Jones (Rochester University, USA), "**Electromechanics of Particles**", **Cambridge University Press**, (1995); E. Dorjgotov et al. **Liquid Crystals**, **35** (2008) 149 – 155; T. Mochizuki **ACS Omega**, **3** (2018) 1031–1040.
- Reviewer to the following journals:
The Journal of Physical Chemistry, Chemical Physics Letters, Microchimica Acta, Journal of Agricultural and Food Chemistry, Journal of Macromolecular Science - Pure and Applied Chemistry, Central European Journal of Physics, IEEE Transaction in Industry Application, Journal of Electrostatics, Electro- and Magnetobiology, Optics Express, Journal of Scientific Research and Reports, Romanian Journal of Physics, Romanian Journal of Biophysics;
- Member of the Editorial Board of „Romanian Journal of biophysics”;
- Reviewer in doctoral committees: 20 PhD theses in the range 2005-2019.

Date: June 20, 2019

Signature

