

PERSONAL INFORMATION



**BUZATU DANIELA**

[All CV headings are optional. Remove any empty headings.]

📍 University Politehnica Bucharest, Romania

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🗨 Replace with type of IM service Replace with messaging account(s)

Sex F | Date of birth 14/04/1958 | Nationality Romanian

POSITION WITHIN THE PROJECT

Member

WORK EXPERIENCE

[Add separate entries for each experience. Start from the most recent.]

Replace with dates (from - to)

- 1 oct.2007-present Professor
- 1.oct.2002-1.oct.2007 Associate Professor
- 1.oct.1997-1.oct.2002 Lecturer
- 16 Feb.1988-1.oct.1997 Assitent Professor

University „ Politehnica”Bucharest, Applied Science, Department of Physics, Splaiul Independentei 313, sector6, Bucharest, Romania

Didactic and research activity: scientific grants and projects as responsible/member

- 1 sept. 1984- 16 feb.1988 - physics engineer - Research institute for wastewater treatment . Bucharest, Romania , research work in transport phenomena in liquids
- 1 sept. 1982 -1 sept.1984 - professor of physics at high school – didactic work

EDUCATION AND TRAINING

[Add separate entries for each course. Start from the most recent.]

Replace with dates (from - to)

- 1991-1995 PhD in Technical Physics - Elementary particles  
 Title: „Study of interactions between antiprotons, nucleons and light nuclei at rest”  
 University „ Politehnica”Bucharest, Applied Science,Department of Physics, Splaiul Independentei 313, sector6, Bucharest, Romania

Replace with EQF (or other) level if relevant

- 1977-1982 Faculty of Physics , University Bucharest, Romania

Specialization : Physics engineer (Mathematics, General Physics, Mechanics, Electromagnetism, Optics, Quantum mechanises, Nuclear Physics, Physics of Elementary Particules, Physics of Solids, Defectoscopy

PERSONAL SKILLS

[Remove any headings left empty.]

Mother tongue(s) Romanian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
Replace with name of language certificate. Enter level if known.					
Russian	B2	B1	B2	B1	B1
Replace with name of language certificate. Enter level if known.					
Franch	B1	B2	A2	A2	B1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user  
Common European Framework of Reference for Languages

Communication skills ▪ Good communication skills gained in the work with students, team work in research contract participations

Organisational / managerial skills ▪ Participation in research national and international contracts, organizing work in the student laboratory.

Job-related skills ▪ Good command of theoretical and applied physics: nuclear physics and elementary particles during my research activity in in the International Institute for Nuclear Research, Dubna- Russia (1991-1996) ; Chemistry Physics during my research activity in Texas Christian University , USA , Chemistry department in chemistry-physics – irreversible thermodynamics field (1998-2001); nanoparticles field in the Centre for Sufaces Science and nanotechnology from Politechnica University (AFM+SPFM) (2011-2013) and from 2014 – present in the field of radioprotection

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Basic user	Basic user	Independent user	Independent user	Independent user

Levels: Basic user - Independent user - Proficient user  
Digital competences - Self-assessment grid

Replace with name of ICT-certificate(s)

Driving licence Replace with driving licence category/-ies. Example:  
 B

ADDITIONAL  
INFORMATION

**1991-1996** I was working as researcher and principal researcher in the International Institute for Nuclear Research, Dubna-Russia, OBELIX collaboration, experiment PS-201; the thematic of research: *Study of interactions of antiprotons with the nucleons and light nuclei at low energy at the OBELIX spectrometer*. The research activity was developed in the following directions: 1. the theoretical study of the Pontecorvo reaction; 2. the theoretical study for violation rule Okubo-Zweig-Iizuka (OZI). From the research activity from Dubna international institute in nuclear and elementary particles field resulted **11 papers; 1 monography**.

**1998-2001** I was working as associate researcher at Texas Christian University, USA, Chemistry department in chemistry-physics – irreversible thermodynamics field. The research activity was developed in the following directions: 1. The theoretical study of spinodal curve base on Wheeler-Widom model with three bodies interactions; 2. The theoretical and experimental study of multicomponent (ternary) diffusion (protein-water-chloride salt)- Lysozyme- $\text{Na}_2\text{SO}_4$ -water; the determination of diffusion coefficients using the Gosting diffusometer based on Rayleigh interferometry; the study of diffusion implications in proteic crystal growth in microgravity conditions; 3. The theoretical and experimental study for viscosity and electrical conductivity for ternary solutions protein-water – salts, looking for electrical charge of protein. (lysozyme). From the activity on chemistry-physics resulted **25 papers, 1 book** in ed. BREN (2007) *Optical and electronical methods applied to ternary protein solutions*

**2011-2013** I was working researcher in the nanoparticles field in the Centre for Surfaces Science and nanotechnology from Politechnica University. The research activity was developed in the following directions: 1. Determination of the dielectric constant for insulating materials by an atomic force microscopy technique (AFM); 2. Determination of wetting properties of glycerol on silicon, native  $\text{SiO}_2$  and bulk  $\text{SiO}_2$  by Scanning Polarization Force Microscopy (SPFM) 3. Determination of contact angle and disjoining pressure of glycerol and sulfuric acid on highly oriented pyrolytic graphite and aluminium using SPFM; 4. Multifractal Analysis of  $\text{CoFe}_2\text{O}_4$ /Lauric Acid/DDS-Na/H<sub>2</sub>O Ferrofluid from Transmission Electron Microscopy (TEM) (**5 papers**)

**2015-present** I was working in the radioprotection field using the Fluka interface for radiation shielding and monitoring optimization at the laser driven nuclear physics experiments

**Projects:**

- 1). CERES 4-163/2004 project, *Strongly correlated fermions investigated by many body methods*, (2004-2006), responsible UPB
- 2.) CEEEX- (SNCRF) 2 CEEEX-06-11-3/25.07.2006, project, *Complete Nuclear spectroscopy by reactions with light targets, fragmentations and fission*, (2006-2009), responsible UPB
- 3). COOPBIL project (International bilateral project Romania-Italia) C-18002/2006 (2006-2008) Title: *Phase transitions and transport phenomena in amphiphilic ternary solutions*, Foreigner partner: University Federico II Naples, Italy
- 4) CERES 4-164/2004 project; Title: *Phase transitions in amphiphilic ternary systems*, responsible UPB

**Over 200 citations in specialized journals ISI**

**Courses:** General Physics

Master level: Technical Physics – Nuclear Physics, Laser and Plasma

### List of publications

1. Cristina Stan, Maria Balasoiu, **Daniela Buzatu**, and C. P. Cristescu, *Multifractal Analysis of CoFe<sub>2</sub>O<sub>4</sub>/Lauric Acid/DDS-Na/H<sub>2</sub>O Ferrofluid from Transmission Electron Microscopy Measurements*, **J. Comput. Theor.Nanosci.** 14, 1-5, (2017)
2. A. Moldovan, **Daniela Buzatu**, M. Enăchescu, *Determination of the local dielectric constant of insulating materials by an atomic force microscopy technique*, **UPB Sci. Bull. Series A.** Vol.78, Nr 1, 257-264, **2016**, ISSN: 1223- 7027
3. A. Moldovan, P.M. Bota, I. Boerasu, D. Bojin, **Daniela Buzatu**, M. Enachescu, *Wetting properties of glycerol on silicon, native SiO<sub>2</sub> and bulk SiO<sub>2</sub> by Scanning Polarization Force Microscopy*, **Journal of Adhesion Science and Technology**, Vol. 28, Issue 13, 277-1287, **2014**, ISSN: 0169-4243
4. Moldovan, A; Bota, PM; Boerasu, I; Dorobantu, D; Bojin, D; **Buzatu, D**; Enachescu, M; "Wetting properties of glycerol on mica and stainless steel by scanning polarization force microscopy"; , **J.Optoelectron Adv.Mat**2013, 15, 1105
5. Moldovan, A; Bota, PM; Poteca, TD; Boerasu, I; Bojin, D; **Buzatu, D**; Enachescu, M; "Scanning polarization force microscopy investigation of contact angle and disjoining pressure of glycerol and sulfuric acid on highly oriented pyrolytic graphite and aluminum"; **European Physical Journal Applied Physics** 2013, 64, 31302
6. Onofrio Annunziata, **Daniela Buzatu**, and John G. Albright , *Protein Diffusiophoresis and Salt Osmotic Diffusion in Aqueous Solutions*, **J. Phys. Chem. B**, **2012**, 116 (42), pp 12694–12705
7. Onofrio Annunziata, **Daniela Buzatu** , and John G. Albright, *Effect of Lysozyme Proteins on the Mutual-Diffusion Coefficient of Sodium Chloride in Water*, **J. Chem. Eng. Data**, **2011**,56 (12), pp 4849–4852
8. **D.Buzatu**, F.D.Buzatu, R.P.Lungu, L. paduano, R.Sartorio, "On the determination of the spinodal curve for the system water+ chloroform+ acetic acid from the mutual diffusion coefficients", **Rom.J.Phys.**,55 , **2010**- 342-351, ISSN: 1221-146-x
9. F. D. Buzatu, R. P. Lungu, **D. Buzatu**, Roberto Sartorio, Luigi Paduano, " *Spinodal composition for the system Acetic acid – chloroform – water at 25 °C.* ", **Journal of Solutions Chemistry** 38: 403–415, **2009**, (FI=1.228/2004) , ISSN: 0095-9782
10. F.D.Buzatu, **D.Buzatu**, *Site density waves vs. bond density waves in the one-dimensional ionic Hubbard model in the high ionicity limit*, **Rom.Journ.Phys.**, Vol 53, No 9-10, pg. 1045-1052, **2008**, ISSN: 1221-146-x
11. **D.Buzatu**, F.D.Buzatu, R.Sartorio, "Partial molar volumes and diffusion coefficients for ternary system water-chloroform-acetic acid at 25 C for different choices of solvent" **UPB. Sci.Bull. Series A.** Vol.70, Nr 4, **2008**, ISSN: 1223-7027
12. F.D.Buzatu, **D.Buzatu**, "One dimensional ionic Hubbard model in the high ionicity limit" **Romanian Reports in Physics**, Vol. 59, nr.2, pag.351-356, **2007**, ISSN: 1221-146-x
13. **D.Buzatu**, F.D.Buzatu, L.Paduano, R.Sartorio " *Diffusion coefficients in the ternary system water-chloroform-acetic acid at 25°C.* " **Journal of Solutions Chemistry**, Vol. 36 , Nr. 11-12, (**2007**), (FI=1.228/2004) , ISSN: 0095-9782
14. **D.Buzatu**, A.M.Popovici, F.D.Buzatu, L.Paduano, R.Sartorio, *Hydrodynamic and thermodynamic aspects of diffusion coefficients in the ternary system water chloroform-acetic acid at 25°C*", **Sci.Bull.UPB**, Vol. 69, nr 3, pag 73-80, (**2007**) **ISSN: 1223-7027**
- 15 . R.Lungu, D.Huckaby, F.D.Buzatu, **D.Buzatu**, " *Three-body and bonding effects on phase separation in a model binary solution*" **Romanian Journal of Physics**, Vol.51, p. 769-782, (**2006**), **ISSN: 1221-146-x**
16. **D.Buzatu** O. Annunziata, E. Petrescu, C. Popa, F.D.Buzatu, " *Dynamic light scattering: a useful optical method to probe common-ion effects in protein - salt aqueous solutions* ", **J.Optoelectron Adv.Mat**, Vol.7 (6), p 3161-3168, (**2005**), **ISSN:1454-4164 (FI=1.138/2005)**
17. Onofrio Annunziata, **D. Buzatu**, John G. Albright " *Protein Diffusion coefficients determined by Macroscopic-Gradient Rayleigh Interferometry and Dynamic Light Scattering*", **Langmuir**, Vol 21, pag. 12085-12089, (**2005**), **ISSN:0743-7463 (FI=3.707/2005)** .
18. **Buzatu**, Popa, E. Petrescu, F.D.Buzatu, " *Determination of the diffusion coefficients for ternary systems from Gosting difussiometer; apparatus and method*", **J.Optoelectron Adv.Mat**, Vol.7, Nr.2, 1079-1090, (**2005**), **ISSN:1454- 4164 (FI=1.138/2005)**

19. **D. Buzatu**, C.Popa, E. Petrescu, F.D. Buzatu, « *Conductimetric method applied to Lysozyme and Lysozyme-NaCl-Water Solution* », *Revue Roumaine de Chimie*, Vol 50, Nr 3, pag. 193-199, (2005), ISSN: 0035-3930 (FI=0.199/2004)
20. **D. Buzatu**, C.Popa, E.Petrescu, F.D.Buzatu, « *Conductimetric method applied to ternary Lysozyme-KCl-Water Solution and Lysozyme-NH<sub>4</sub>Cl-Water Solution* », *Revue Roumaine de Chimie*, Vol. 50 (3), pag. 185-191, (2005), ISSN: 0035-3930 (FI=0.199/2004)
21. **D. Buzatu**, E. Petrescu, C. Popa, F.D.Buzatu “ *Conductivity and viscosity measurements for binary lysozyme chloride aqueous solution and ternary lysozyme-salt-water solution*”, *Revista de Chimie*, Vol. 56 (1), pag. 61- 65, (2005) , ISSN: 0034-7752 (FI=0.308/2004)
22. F.D.Buzatu, R.P.Lungu, D.A Huckaby, **D. Buzatu**, “*A Three component Molecular Model with Bonding Three-Body Interactions*”, *Romanian Journal of Physics*, Vol. 50, Nr.3-4, pag. 417-425, (2005), ISSN: 1221-146-x
23. **D.Buzatu**, E.Petrescu, C.Popa, F.D.Buzatu, J.G.Albright, “*Extraction of Thermodynamic Data from Ternary Diffusion Coefficients of Lysozyme Chloride in Water and Aqueous Na<sub>2</sub>SO<sub>4</sub>*”, *Revista de Chimie*, Vol.55 (10) Pag. 759-763, (2004), ISSN: 0034-7752 (FI=0.308/2004)
24. **D. Buzatu**, « *Rayleigh optical interferometric method applied to ternary Lysozyme-Na<sub>2</sub>SO<sub>4</sub>-Water Solution* », *Sci.Bull.UPB*, Vol.66, No. 2-4, pag. 85-94, (2004), ISSN: 1223-7027
25. **D. Buzatu**, E.Petrescu, C. Popa, F.D. Buzatu, J.G. Albright, “ *Measurements of multicomponent diffusion coefficients for lysozyme chloride in water and aqueous Na<sub>2</sub>SO<sub>4</sub>*”, *Revista de Chimie*, Vol. 55 (6), pag. 435-438, (2004), ISSN: 0034-7752 (FI=0.308/2004)
26. **D. Buzatu** “ *Conductimetric applied to binary Lysozyme Chloride-Water Solution*”, *Sci.Bull. UPB*, Vol. 66, No.2-4, pag. 47-56, (2004), ISSN: 1223-7027
27. F.D Buzatu, **D. Buzatu**, “*Antiferromagnetic-like ordering in a model ternary solution*”, *Romanian Journal of Physics*, Vol. 48, Supplement I, P.pag 521-532, (2003), ISSN: 1221-146-x
28. F.D. Buzatu, **D. Buzatu**, J.G. Albright, “*Spinodal curve of the Wheeler-Widom model with three-body interactions on the Bethe Lattice*”, *Romanian Journal of Physics*, Vol. 47, nr. 3-4, pag. 359-370, (2002) ,ISSN: 1221-146-x
29. F.D. Buzatu, **D. Buzatu**, “*Effective spinodal curve of a three-component molecular system*”, *Romanian Journal of Physics*, Vol. 47, nr.1-2, pag. 293-305, (2002),ISSN: 1221-146-x
- 30.F.D. Buzatu, **D. Buzatu**, J. G. Albright, “*Spinodal curve of a model ternary solution*”, *Journal of Solution Chemistry*, Vol. 30, No 11, pag. 969-983, (2001) ISSN: 0095-9782 (FI=0.966/2001)
- 31.D. Huckaby, A. Pekalski, **D. Buzatu**, F.D. Buzatu, “*Amphiphile-rich phase in a model ternary solution on the honeycomb lattice*”, *Journal of Chemical Physics*, Vol 115, No 14, pag. 6775-6779, (2001),ISSN:0021-9606 (FI=3.147/2001)
32. **D. Buzatu** F.M. LEV, “*Manifestation of the Delta ++ resonance in the reaction antiproton-deuteron*”, *Phys. Of Atomic Nuclei* 60, 1186-1192, (1997) ISSN: 1063-7788 (FI=0.208/1997)
33. **D. Buzatu**, F.M. LEV, “*J/Psi decays as a test of OZI-rule violation in nucleon-antinucleon annihilation*”, *Hadronic Journal* 20, 615-619, (1997), ISSN:0162-5519(FI=0.96/(1974-2001)
34. **D. BUZATU**, F.M. LEV, “ *Okubo-Zweig-Iizuka rule violation in the reaction antiproton-proton with Phi meson production*”- *Replay*”, *Physical Rev. C* 53, 1453-1453, (1996),ISSN:0556-2813 (FI=2.07/(1974-2001)
35. **Buzatu**, F.M. LEV, “*Some aspects of the OZI-rule violation in the reaction proton-antiproton resulting Phi -pi mesons production*”, *Physics of atomic Nuclei* 59(2), 280-288, (1996) ( traducere din Yadernaia Fizika 59, 300-308, 1996)ISSN: 1063-7788 (FI=0.28/(1994-2001)
- 36.**D. Buzatu**, F.M. LEV, “*The problem of the OZI-rule violation in the reaction antiproton-proton with the production of f resonance*”, *Physics Lett.* B359 (3-4) , 393-396, (1995) , ISSN: 0370-2693) (FI=3.62/1974-2001
37. **D. Buzatu**, F.M. LEV, “*The OZI-rule violation in the reaction antiproton-proton with the production of Phi meson*”, *Physical Rev. C* 51 (6) , 2893-2895, (1995), ISSN:0556-2813 (FI=2.07/(1974-2001)

38. **D. Buzatu, F.M. LEV**, "Violation of the Okubo-Zweig-Iizuka rule in the annihilation of slow antiprotons on deuteron", *Physics of Atomic Nuclei* 58(3), 480-483, (1995) ( translated from *YadernaiaFizika*, 58 (3), 531-535, 1995 "НарушенииправилаОкубо-Цвейга-Изукиваннигиляцииимедленныхантипротоновнадейтроне" ), ISSN: 1063-7788 (FI=0.162/1995),
39. **D. Buzatu, F.M. LEV**, "A simple mechanism of the Pontecorvo reaction", *Phys.of Atomic Nuclei* in traducere USA 57(6), 1000-1003, (1994) (traducere *YadernaiaFizika*57, 1061-1064, 1994 "ПростоймеханизмреакцииПонтекорво" ), ISSN: 1063-7788 (FI=0.068/1994)
40. **D. Buzatu, F.M. LEV**, "On the role of  $KK^*$  intermediate states in Okubo- Zweig-Iizuka -rule violating reactions of antiproton annihilation", *Physics Lett.B* 329(1), 143-148, (1994), ISSN: 0370-2693 (FI=3.62/(1974-2001 )
41. **Buzatu, T.CRETU**, "Simple mechanism of Pontecorvoof Pontecorvo reaction", *Sci.Bull.UPB Series A* 56, NR. 3-4, 105-109, (1994), ISSN: 1223-7027

9 books – 3 courses of physics for students, 4 applications in physics for students , 1 monography: **D. Buzatu& F.M. Lev**, "Problems with the OKUBO-ZWEIG-IIZUKA rul violation in nucleon-antinucleon annihilation at rest", *Phys of PartNuclei* 29 (1), pag.212-251, (1998,) Editura ECIAIA, DUBNA, Rusia, FI=0.49/(1974-2001), ISSN:1063-7796 and 1 scientific book**D.Buzatu, E. Petrescu, F.D. Buzatu**"Optical and electronical methods applied to ternary protein solutions" Ed. BREN p.107 (2007) Bucharest, ISBN 978-973-648-641-8 .



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