

CURRICULUM VITAE

Last name	DUCA
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Grade	Lecturer
Title	PhD in Physics
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RESEARCH FIELDS:

- **Material Physics:** Polymer Materials, X - ray Photoelectron Spectroscopy, Atomic Force Microscopy, RF Plasma, Thermally Stimulated Depolarization Currents, Liquid Crystals.
- **Molecular Spectroscopy:** Fluorescence Spectroscopy (in Bulk and Supersonic Jet Expansion) and Absorption Spectroscopy.

EDUCATIONAL BACKGROUND:

1983.1987 B.Sc. in Physics, Univ. of Bucharest, Romania.
 1987.1988 M.Sc. in Polymer Physics, Univ. of Bucharest.
 2002.2006 Ph.D. in Physics, Univ. of Bucharest.

PROFESSIONAL EXPERIENCE:

1988.1992 Physicist, Synthetic Fibres Works, Savinesti, Romania.
 1992.2006 Assistant Professor, Dept. of Physics, Fac. of Chemistry, Univ. of Bucharest.
 2006-2010 Lecturer, Dept. of Physics, Fac. of Chemistry, Univ. of Bucharest.
 2006-present Lecturer, Dept. of Physical Chemistry, Fac. of Chemistry, Univ. of Bucharest.

MISCELLANEOUS:

- 2 participations at the National Olympiad in Physics – Final Stage (in 1981 and 1983),
- Special prize awarded at the National Olympiad in Physics, 1981,
- Second prize awarded at the Session of Scientific Communications of Young Engineers, The Synthetic Fibers Works, Savinesti-Romania, Dec. 1989.

AFFILIATION:

- European Physical Society, EPS (member).
- Romanian Physical Society, RPS (member).
- Romanian Chemical Society, RCS (member).

FOREIGN LANGUAGES: English (Fluent).

RESEARCH AND SPECIALIZATION GRANTS

1995(Jan. –June) TEMPUS (European Community) grant for didactic specialization at Univ. of Ulster, Northern Ireland, UK.

1997 SOROS grant for travelling to the USA for performing research.

Aug.1997–June 2000 Grant for research (in Fluorescence Spectroscopy field with supersonic jet expansion) offered by Dept. of Chemistry, Univ. of Indiana, Bloomington, Indiana State, USA.

GRANTS:

CNCSIS IDEI 143 (2007-2010) – member in the research team.

CITATIONS:

65 citations in ISI journals until Jan. 2011.

BOOKS:

1. *Optics Practical Works* (in Romanian), Carmina Plosceanu and Mariana Duca, Bucharest Univ. Press, 1993.
2. *Optics – Tests and Practical Works* (in Romanian), Mariana Duca and Carmina Plosceanu, Bucharest Univ. Press, ISBN: 973-575-716-8, 2003.

ARTICLES:

1. Order Parameters of Azodyes Derived from Cumylphenol Dissolved in Nematic Liquid Crystal, Carmina Plosceanu, Maria Ana Popovici, and Mariana Duca, *Rom. J. Phys.* 42, Nos. 5 – 6, pg. 401 – 407 (1997).
2. Molecular Ordering of the Anthracene in Nematic Matrix of 4 -Cyanophenyl- 4'-Pentyl Benzoate, Carmina Plosceanu, Maria - Ana Popovici, and Mariana Duca, *Rom. J. Optoelect.*, 5, No.3, pg. 61 – 68 (1997).

3. Influence of the Electric Field Strength on the Thermally Stimulated Depolarization Currents in PET, Tatiana Pop, I. Pop, and Mariana Duca, *Rom. Rep. Phys.*, 49, Nos. 8-9-10, 925 – 932 (1997).
4. Effect of X – rays on Poly(vinylidene fluoride) in X - ray Photoelectron Spectroscopy, Mariana Duca, Carmina Plosceanu, and Tatiana Pop, *J. Appl. Polym. Sci.*, 67, 2125 - 2129 (1998).
5. Surface Modification of Polyvinylidene fluoride (PVDF) under rf Ar Plasma, Mariana Duca, Carmina Plosceanu, and Tatiana Pop, *Polym. Degrad. Stab.*, 61, 65 – 72 (1998).
6. The Intramolecular Vibrational Energy Redistribution Threshold in S₁ deuterated *p*-difluorobenzene, Mariana D. Duca, *Spectrochimica Acta Part A*, 60, 2667-2671 (2004).
7. The Effect of Kinematic Parameters on Inelastic Scattering of Glyoxal, Mariana D. Duca, *J. of Chem. Phys.*, 121(14), 6750-6758 (2004).
8. Effect of Temperature on the Refractive Indices and Optical Birefringence Dispersion of Nematic Liquid Crystal 4-Cyanophenil-4'-Pentyl Benzoate, Carmina Plosceanu and Mariana Duca, *Bucharest Univ. Annals (Chemistry)*, **19 (1)**, 55-60 (2010).
9. Dissociative Excitation of HD⁺, D₂⁺ and DT⁺ by electron impact, Mariana Duca and Magda Fifirig, *Centr. Eur. J. Phys.*, **8(1)**, 87-94 (2010).
10. Competition between reaction channels in electron collisions of vibrationally excited H₂⁺, Aurica Varlan, Mariana Duca, and Magda Fifirig, *Molec. Phys.*, **108(16)**, 2093–2104 (2010)

SCIENTIFIC COMMUNICATIONS:

1. The Study of Friction and Lubrication of PA₆ Synthetic Fibers, Mariana Duca and Lucretia Savu, *The Session of Scientific Communications of Young Engineers*, The Synthetic Fibers Works, Savinesti - Romania, Dec. 1989, oral.
2. Study of Polyvinylidene Fluoride Surface undergone Different Treatments. I. PVDF Degradation under X - ray Exposure, Mariana D. Duca and Norman M.D. Brown, *The National Physics Conference*, Baia Mare, Nov. 30 – Dec. 02, 1995, oral.
3. Study of Polyvinylidene Fluoride Surface undergone Different Treatments. II. Chemical Composition and Topography of PVDF Surface exposed by Ar rf plasma, Mariana D. Duca, Norman M.D. Brown, and Colin Anderson, *The National Physics Conference*, Baia Mare, Nov. 30 – Dec. 02, 1995, oral.

4. A laser pump – dispersed fluorescence approach to inelastic scattering in S_1 glyoxal at varying collision energies, Samuel M. Clegg, Mariana D. Duca, and Charles S. Parmenter, *The 54th Ohio State University International Symposium on Molecular Spectroscopy*, USA, June 14 – 18, 1999, oral.
5. The effect of kinematic factors on rotationally and rovibrationally inelastic scattering of glyoxal, Mariana D. Duca, Charles S. Parmenter, and Samuel M. Clegg, *The 55th Ohio State University International Symposium on Molecular Spectroscopy*, USA, June 12 - 16, 2000, oral.
6. Emission spectra of some substituted phenoxathiin sulphones and of some inclusion complexes with cyclodextrins, Mariana Duca and Mihaela Hillebrand, *The 4th International Conference of the Chemical Societies of the South-Eastern European Countries on Chemical Sciences in Changing Times: Vision, Challenges and Solutions*-Belgrade, Serbia and Montenegro, July 18-21, 2004, poster.
7. The Influence of Molecular Beam Expansion Conditions on Glyoxal Rotational Cooling, Mariana Duca, *International Conference on Physical Chemistry – RomPhysChem – 12*, Bucharest, Sept. 6 – 8, 2006, poster.

Date: March 25th, 2011