

CURRICULUM VITAE

SURNAME AND NAME	Ionescu Anca-Luiza (born Alexe)
Home Address	Bd. M.Kogalniceanu 37, Bucharest, Romania
Phone number	0040745944647
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E-mail address	anca-luiza.ionescu@physics.pub.ro
Nationality	Romanian
Birth date	16/06/1958

Academic Position

Qualification/Title	Full professor
University	University Politehnica of Bucharest
Department	Physics
Academic Field	Physics
Academic Discipline	General Physics, Physics of materials

Working experience

Dates	09/2002-present
Name and address of the Employer	University Politehnica of Bucharest, Splaiul Independentei 313, 060042-Bucharest, Romania
Position held	Full professor Faculty of Applied Sciences, Department of Physics
Main activities/responsibilities	Teaching and research Lectures on General Physics and Physics of Materials Head of research laboratory Physics of Materials
Dates	09/1999-09/2002
Name and address of the Employer	University Politehnica of Bucharest, Splaiul Independentei 313, 060042-Bucharest, Romania
Position held	Associate professor Faculty of Applied Sciences, Department of

	Physics
Main activities/responsibilities	Teaching and research Lectures in General Physics, Quantum mechanics Head of research laboratory Physics of Materials
Dates	09/1995-09/1999
Name and address of the Employer	University Politehnica of Bucharest, Splaiul Independentei 313, 060042-Bucharest, Romania
Position held	Lecturer Faculty of Electronics, Department of Physics
Main activities/responsibilities	Teaching and research Lectures on General Physics Head of liquid crystal research laboratory
Dates	09/1988-09/1995
Name and address of the Employer	Politehnical Institute of Bucharest (1988-1990), University Politehnica of Bucharest (1990-1995), Splaiul Independentei 313, 060042-Bucharest, Romania
Position held	Professor's assistant Faculty of Electronics, Department of Physics
Main activities/responsibilities	Teaching and research
Dates	09/1982-09/1988
Name and address of the Employer	High School of Chemistry, Busteni, Romania
Position held	Professor of Physics
Main activities/responsibilities	Teaching

Education

Date	03/1995
Institution which issued the degree	University of Bucharest
Type of Degree awarded	Ph.D
Date	06/1982
Institution which issued the degree	University of Bucharest
Type of Degree awarded	B.Sc. in Physics

1. Scientific Activity

98 publications in ISI journals, h index 17, 858 citations and 2 patents

The most important outcomes/results of the research activity

- **Role of the diffuse layer of the ionic charge on the impedance spectroscopy of a cell of liquid**

We analyzed the influence of the diffuse layer of the ionic charge on the electrical impedance of the cell, assuming that the electrodes are ideally polarizable. We have evaluated the density profiles of the positive and negative ions across the sample, the current in the external circuit and the impedance of the cell. The equivalent electrical conductivity and the dielectric constant of the sample have been obtained from the impedance of the system and their frequency dependence investigated. According to our model, the presence of ions is responsible for a distribution of the relaxation times.

- **Gradient flexoelectric effect and thickness dependence of anchoring energy**

To generalize a previous model, A.L.Ionescu has investigated the influence of the flexoelectric polarization on the anisotropic part of the surface tension of a nematic liquid crystal and on its dependence on the thickness of the sample. She has shown that besides the dielectric coupling between the surface electric field and the nematic liquid crystal, the quadrupolar flexoelectric coupling plays an important role. This new coupling mechanism can be responsible for non monotonic trends of the anchoring energy strength versus the thickness of the sample.

- **Significance of small voltage in impedance spectroscopy measurements on electrolytic cells**

An important result, for the experimental point of view, has been presented for the first time. The impedance spectroscopy technique is meaningful only if it is possible to define the electrical impedance of the cell under investigation. This implies that the system behaves as a linear system. Our analysis has been performed assuming that the electrodes are perfectly blocking. In the low frequency range, the system is linear only if the amplitude of the applied voltage is small with respect to the thermal voltage. For large values of the frequency, the amplitude of the applied signal has to be small with respect to a critical voltage which is frequency dependent.

Contributions of A.L.Alexe-Ionescu:

- Study of the currents through the photoelectrochemical water splitting cell, developing a theoretical model showing that the non-monotonic behavior of the photocurrent on the thickness of the catalyst films is mainly due to the porous nature of the semiconducting material.
- Study of the bubble formation and evolution in a water splitting photoelectrochemical cell.
- Analysis of the influence of the electrode properties on the electric response of an electrochemical cell; role of the deposition of a coating material on the electrode surface.
- Modelization of the charge transport and charge transfer in dye-sensitized solar cells; influence of the dye impregnation time in the electrical response of the cell.
- Analysing the electrical conduction in ionic doped polymers and the new type of anchoring energy of liquid crystal molecules when aligned with thin ionic doped polymer layers; modelling the electric behavior of nematic liquid crystals aligned with doped polypyrrols.
- Analysis of the formation of the surface layer in an electrolytic cell, responsible for the increasing of the real part of the dielectric constant. This analysis permits to investigate the role of the ions on the impedance spectroscopy of the electrolytic cell.

- Study of the relaxation times of an electrolytic cell submitted to a step-like external voltage of small amplitude. The extension to the case of large amplitude has been considered numerically, and a the comparison of the theoretical prediction with the experimental data has been done. The influence of the adsorption on the relaxation times of the system was analysed.
- Analysing the fast electro-optic switching in liquid crystals oriented with plasma deposited polymer films; modelling of electric conduction in liquid crystal by considering the role of delocalized electrons in the interaction between the aligning plasma deposited films and nematogen cyanobiphenyls.
- Investigations of the dielectric relaxation mechanisms of hydrogels used for biomedical applications; model for the frequency dependence of the viscosity of the hydrogel.
- Proposed a new technique to obtain a planar bistable nematic liquid crystal anchoring using surface anchoring competition. Two supported aligning films have been used, the lower anisotropic film is a SiO coating layer, giving a planar orientation of the liquid crystal molecules, the upper film is a linearly photopolymerized layer, inducing a perpendicular orientation of the liquid crystal molecules with respect to the one induced by SiO film.

See paper list at the end of the Curriculum

2. Coordination of research and technology transfer groups and projects.

- Head of the research laboratory "Physics of materials", Department of Physics, University Politehnica of Bucharest (from 1999).

Collaborations:

1. Dipartimento di Scienza Applicata e Tecnologia, Politecnico di Torino, Corso Duca Degli Abruzzi 24, 10124 Torino, Italy, prof. G. Barbero, F. Pirri, E. Tresso and prof. G. Saracco, on the impedance spectroscopy of electrolytic and biologic liquids, DSSC, photoelectrochemical cells.
2. Center for Space Human Robotics, Fondazione Istituto Italiano di Tecnologia, Corso Trento 21, 10129 Torino, Italy, prof. F. Pirri, on the description on the electric properties of the dye-sensitised solar cells.
3. Universidade Estadual de Maringa, Avenida Colombo 5790, 87020, Parana', Brasile, prof. L. R. Evangelista, on the mathematical description of the adsorption phenomenon.
4. Dipartimento di Fisica, Universita della Calabria, Arcavacata di Rende (Cs), Italy, prof. R. Barberi and prof. N. Scaramuzza, on anchoring properties of nematic liquid crystals.
5. Insituto de Fisica, Universidade de Sao Paulo, 05315-970 Sao Paulo, Brasile, prof. A. M. Figueiredo Neto and prof. E. Andreoli de Oliveira, on the role of ohmic character of the electrodes on the impedance spectroscopy of an electrolytic cell.
6. Physics Department, University of Ljubljana, Jadranska 19, SI-1000 Ljubljana, Slovenia, prof. S. Zumer and Dr. G. Skacej, on the numerical solution of differential equations describing the influence of the ions on the electric polarization due to the mechanical deformations.

7. Groupe des Cristaux Liquides, Universite' de Picardie Jules Verne, 33 rue Saint Leu 80039, Amiens, France, prof. I. Lelidis, on the drift-diffusion problem for ions dispersed in isotropic or anisotropic liquid;

- **Principal Investigator of the following National research projects:**

1. *Studying the external fields influence on the liquid crystal macroscopic properties*, No. 5001C/1993 (1993-1995), Ministry of National Education.
2. *Electric and magnetic field effects and surface phenomena on thermotropic and polymeric liquid crystal devices*, No.4001/1995(1995-1997), Ministry of National Education.
3. *Inducing weak anchoring in polymer thin film oriented nematic liquid crystals; electro-optic effects*, No.18.02.24/2001 (2001-2003), CNCSIS.
4. *Laser radiation induced nonlinear effects in dye-doped liquid crystals*, No. 27692/10.03.2005 (2005), CNCSIS.
5. *Ordered Soft Materials to Improve Dye-sensitized Solar Cells' Efficiency*, No. 109/5.10.2011 (2011-2016).
6. *Smart materials to improve the lab-scale design of dye sensitized solar cells*, Proiect Idei, PN-III-P4-ID-PCE-2016-0556

- **Scientific responsibility of the following International projects, partnership agreements:**

1. *Novel techniques and models for the surface treatment of liquid crystals with optical applications*, INCO-COPERNICUS IC15-CT96-0744 (1997-1999).
2. *Photonic devices: new liquid crystalline composite materials*, INCO-COPERNICUS IC15-CT98-0806 (1999-2002).

- **Patents:**

1. *Cellule comprenant une plaque a ancrage controle pour cristaux liquides nematiques et precede de realisation d'une tell plaque*, Patent No.PCT/Fr98/00878
Authors: R.Bartolino, R.Barberi, A.L.Alexe-Ionescu, M.Giocondo, M.Iovane, J.J.Bonvent, M.Schadt
2. *Dispositivo di visualizzazione a cristalli liquidi nematici*, Patent No.TO2003A000490
Authors: N.Scaramuzza, A.L.Alexe-Ionescu, A.Th.Ionescu, E.Barna, V.Barna

3. **National and international reputation and professional activity for the scientific community**

- **Official research, positions as Visiting Professor in international highly qualified universities and research centers.**

01.03-21.05.1992, Tempus Programme, research grant, Dipartimento di Fisica, Politecnico di Torino, Italy.

15.05-31.07.1994, BriteEuRam Project, research grant, Dipartimento di Fisica, University of Calabria, Italy.

1.08-31.08.1995, research grant, Departamento de Fisica, Experimental, Instituto de Fisica, Universidade de Sao Paulo, Brazilia.

1.09-30.10.1996, BriteEuRam Project, research grant, Dipartimento di Fisica, University of Calabria, Italy.

1.02-15.02.1996, 1.03-15.03.1998, research stages, Faculty of Physics, University of Ljubljana, Slovenia.

1.02-1.03.1997, research grant, Departamento de Fisica, Experimental, Instituto de Fisica, Universidade de Sao Paulo, Brazilia.

1.05-15.05.1998, research stage, Research Institute of Solid State Physics of Hungarian Academy of Science, Budapest.

1.05-31-07.1997, IC-96-CT160744 Project, research grant, Dipartimento di Fisica, University of Calabria, Italy.

15.06-15.07.1999, IC-96-CT160744 Project, research grant, Dipartimento di Fisica, University of Calabria, Italy.

14.10-3.11.2002, 17.10-30.11.2005, 1.02-3.03.2006, 1.10-23.12.2007, research stages, Dipartimento di Fisica, Politecnico di Torino, Italy.

1.09-1.10.2008, research stage, Department of Physics, Chalmers University, Goteburg, Sweden

1.10.2008-30.04.2009, Visiting Contract, CRT Foundation, Lagrange Project „The Challenge of Complex System” (partially financed by LISiN, Department of Electronics, Politecnico di Torino).

15.10.2010-15.02-2011, Visiting Professor Center for Space Human Robotics of IIT@Polito, Torino, Italy.

15.10.2011-15.02-2012, Visiting Professor Center for Space Human Robotics of IIT@Polito, Torino, Italy.

16.09.2014-16.09.2015, research stage, Dipartimento Scienza Applicata e Tecnologia, Politecnico di Torino, Italy.

Languages:

English: Reading skills: very good, Writing skills: very good, Oral skills: very good

Italian: Reading skills: good, Writing skills: good, Oral skills: good

Place and date : Bucharest, Dec 10, 2018

List of publications

Prof. Anca-Luiza IONESCU (Alexe)

Department of Physics, University Politehnica of Bucharest

1. Investigation of the conduction properties of ionic liquid crystal electrolyte used in dye sensitized solar cells

R. Atasiei, M. Raicopol, C. Andronescu, A. Hanganu, A.L. Alexe-Ionescu, G. Barbero
J. Molecular Liquids **267**, 81-88 (2018).

2. Role of the electrode morphology on the optimal thickness of BiVO₄ anodes for photoelectrochemical water splitting cells

S.Hernandez, G.Saracco, G.Barbero, A.L.Alexe-Ionescu, *J. Electroanal. Chem.* **799**, 481-486 (2017).

3. Non-monotonic dependence of the current density on the thickness of the photoactive layer

G.Saracco, G.Barbero, S.Hernandez, A.L.Alexe-Ionescu, *J. Electroanal. Chem.* **788**, 61-65 (2017).

4. Interface description of Milli-Q water cells: Temperature dependence of CPE parameters

T.de Andrade, F.C.M.Freire, G.Barbero, A.L.Alexe-Ionescu, *J. Electroanal. Chem.* **777**, 19-25 (2016).

5. Experimental evidence for Ohmic behaviour of a 5CB planar cell limited by ITO-electrodes in the DC limit

C.Dascalu, A.L.Alexe-Ionescu, G.Barbero, *J. Electroanal. Chem.* **767**, 63-67 (2016).

6. Inside on the surface polarisation for non-blocking electrodes

T.de Andrade, A.L.Alexe-Ionescu, G.Saracco, G.Barbero, *J. Appl. Phys.* **119**, 095305 (2016).

7. Ohmic model for electrodeposition of metallic ions

A.Gliozzi, A.L.Alexe-Ionescu, G.Barbero, *Phys.Lett. A* **379**, 2657-2660 (2015).

8. A model for electrode effects based on adsorption theory

A.Gliozzi, S.Hernandez, A.L.Alexe-Ionescu, G.Saracco, G.Barbero, *Electrochimica Acta* **178**, 280-286 (2015).

9. Consideration on Oxygen Bubbles Formation and evolution on BiVO₄ Porous Anodes Used in Water Splitting Photoelectrochemical Cells

S.Hernandez, G.Barbero, G.Saracco, A.L.Alexe-Ionescu, *J. Phys. Chem C* **119**, 9916-9925 (2015).

10. Differential conductance of an electrolytic cell in the presence of a deposition of a coating material on the electrode

G.Saracco, A.L.Alexe-Ionescu, G.Barbero, *J. Electroanal. Chem.* **741**, 134-138 (2015).

11. Electrode covering effect on the electric response of a cell to external stimulus

A.L.Alexe-Ionescu, G.Barbero, G.Saracco, *J. Electroan. Chem.* **734**, 79-83 (2014).

12. Electric investigation of a photo-electrochemical water splitting device based on a proton exchange membrane with drilled FTO-covered quartz electrodes: under dark and light conditions

S.Hernandez, G.Saracco, A.L.Alexe-Ionescu, G.Barbero, *Electrochimica Acta* **144**, 352-360 (2014).

13. Evidence for frequency dependent diffusion coefficient in hydrogel

M.Scalerandi, G.Barbero, A.L.Alexe-Ionescu, *J. Appl. Phys.* **116**, 094104 (2014).

14. Independence of the effective dielectric constant of an electrolytic solution on the ionic distribution in the linear Poisson-Nernst-Planck model

A.L.Alexe-Ionescu, G.Barbero, I.Lelidis, *J. Chem. Phys.* **141**, 084505 (2014).

15. Small signal response of an unsupported solid electrolyte to a dc external electric field

G.Saracco, A.L.Alexe-Ionescu, G.Barbero, *J. Electroanal. Chem.* **724**, 118-124 (2014).

16. Comment on: Modeling of electrode polarization for electrolytic cells with a limited ionic adsorption

A.L.Alexe-Ionescu, G.Barbero, I.Lelidis, *Phys. Rev. E* **89**, 056401 (2014).

17. Electric response of an electrolytic cell to a periodic excitation in a dc limit

- A.L.Alexe-Ionescu, G.Barbero, A.R.Duarte, G.Saracco, Phys.Lett. A **378**, 1883-1887 (2014).
- 18. Modeling of the dye loading time influence on the electrical impedance of a dye-sensitized solar cell**
D.Pugliese, N.Shahzad, A.Sacco, E.Tresso, A.L.Alexe-Ionescu, J. Appl. Phys. **114**, 094901 (2013).
- 19. Physical description of the impregnation mechanism of dye molecules in contact with porous electrodes**
N.Shahzad, E.Tresso, A.L.Alexe-Ionescu, G.Barbero, Phys. Lett. A **377**, 915-919 (2013).
- 20. Cholesteric pitch transitions induced by mechanical stain**
I.Lelidis, G.Barbero, A.L.Alexe-Ionescu, Phys. Rev. E **87**, 022503 (2013).
- 21. Influence of the dye impregnation time on the electrical impedance of a solar cell**
A.L.Alexe-Ionescu, G.Barbero, E.Tresso, F.Pirri, J. Appl. Phys. **112**, 024106 (2012).
- 22. Electrical response of electrolytic cells limited by different types of electrodes**
A.L.Alexe-Ionescu, G.Barbero, S.Bianco, G.Cicero, F.Pirri, J. Electroan. Chem. **669**, 21-27 (2012).
- 23. Electric Characterization and Modeling of Microfluidic-Based Dye-Sensitized solar cell**
A.Sacco, A.Lamberti, M.Quaglio, S.Bianco, E.Tresso, A.L.Alexe-Ionescu, F.Pirri, I. Journal of Photoenergy, Vol. **2012**, Art.ID 216780 (2012).
- 24. Influence of the rheological properties of the electrical impedance of hydrogels**
A.L.Alexe-Ionescu, G.Barbero, C.Meyer, J. Appl. Phys. **111**, 014905 (2012).
- 25. Small-signal ac response of an electrolytic cell with recombining space charge**
A.L.Alexe-Ionescu, G.Barbero, S.Bianco, G.Cicero, E.Tresso, Phys.Lett.A **375**, 4225-4232 (2011).
- 26. Effect of viscosity on the electrical response of a hydrosolution**
F.C.M.Freire, C.Dascalu, R.Atasiei, A.L.Alexe-Ionescu, G.Barbero, Appl.Phys.Lett. **99**, 014101 (2011).
- 27. Electric response of a cell of hydrogel" Role of electrodes**
A.L.Alexe-Ionescu, R.Atasiei, C.Dascalu, F.C.M.Freire, G.Barbero, Appl.Phys.Lett. **98**, 064101 (2011).
- 28. Mechanisms leading to the fast relaxation of liquid crystal cells aligned with conductive polymers**
G.Nicastro, N.Scaramuzza, R.Bartolino, A.L.Alexe-Ionescu, A.Th.Ionescu, J.Appl.Phys.**108**, 073519 (2010).
- 29. Effect of composition on the dielectric properties of hydrogels for biomedical applications**
A.L.Alexe-Ionescu, G.Barbero, F.C.M.Freire, R.Merletti, Physiological Measurement **31**, S169 (2010).
- 30. Statistical analyses of repolarization current of a PZT film deposited on ITO electrode with different thermal treatments**
S.Marino, A.Th.Ionescu, A.L.Alexe-Ionescu, G.Nicastro, G.Strangi, N.Scaramuzza, Philosophical Magazine **90**, 1575 (2010).
- 31. Anomalous conductivity in PZT thin film deposited on copper substrate electrode**
A.Th.Ionescu, A.L.Alexe-Ionescu, S.Marino, M.Castriota, G.Strangi, G.Nicastro, N.Scaramuzza, Philosophical Magazine **90**, 1733 (2010).
- 32. Electro-optic effect in nematic liquid crystals aligned with conductive polymer**
M.Raicopol, C.Dacalu, R.Atasiei, A.L.Alexe-Ionescu, ROMOPTO 2009: Ninth conference on optics: micro- to nanophotonics, SPIE 7469, 74690K (2010).
- 33. Models for ionic contribution to the complex dielectric constant of nematic liquid crystals**
A.L.Alexe-Ionescu, G.Barbero, I.Lelidis, Phys.Rev.E **80**, 061203 (2009).
- 34. Complex dielectric constant of a nematic liquid crystal containing two types of ions: limit of validity of superposition principle**
A.L.Alexe-Ionescu, G.Barbero, I.Lelidis, J. Phys. Chem. B **113**, 14747-14753 (2009).
- 35. Surface treatment and bulk density of ions in nematic liquid crystals**
A.L.Alexe-Ionescu, G.Barbero, F.Ciuchi, A.Mazzulla, N.Scaramuzza, J.Appl.Phys. **106**, 044508 (2009).

- 36. Electrical behaviour of nematic cells oriented by polypyrrole surface treatment** A.L.Alexe-Ionescu, G.Barbero, C.Dascalu, M.Scalerandi, Appl.Phys.Lett. **95**, 064101 (2009).
- 37. Surface energy of a nematic liquid crystal in contact with structured surfaces**
A.L.Alexe-Ionescu, G.Barbero, L.Komitov, Phys.Rev.E **80**, 021701 (2009).
- 38. Electrode potential and selective ionic adsorption**
A.L.Alexe-Ionescu, G.Barbero, R.Merletti, Phys. Lett. A **373**, 1791-1795 (2009).
- 39. Reorientation effect on current-voltage characteristic of nematic cell**
R.Atasiei, A.L.Alexe-Ionescu, C.Dascalu, J.C.Dias, R.T.de Souza, Phys. Lett. A **372**, 6116-6120 (2008).
- 40. Current measurements across a nematic cell submitted to an external voltage and its equivalent electrical circuit**
R. Atasiei, A.L.Alexe-Ionescu, J.C.Dias, L.R.Evangelista, G.Barbero, Chem.Phys.Letts. **461**, 164-169 (2008).
- 41. Anchoring on nematic liquid crystals on thin polymeric film**
A.L.Alexe-Ionescu, G.Barbero, L.Komitov, Phys.Rev. E **77**, 051701 (2008).
- 42. Dye adsorption alteration of anchoring properties of planar orienting films**
C.Dascalu, C.Uncheselu, N.Eseanu, A.L.Alexe-Ionescu, J.O.A.M, **10**, No.2, 363-368 (2008).
- 43. The role of insulating surface layer on the relaxation time of the ionic redistribution in an electrolytic cell**
F.C.M.Freire, G.Barbero, M.Scalerandi, A.L.Alexe-Ionescu, Mol.Cryst.Liq.Cryst, **480**, 93-102 (2008).
- 44. Ionic contribution to nematicliquid crystal-conductive polimer interface phenomena**
R.Atasiei, C.Dascalu, N.Eseanu, M.Raicopol, A.L.Alexe-Ionescu, Sci.Bull. A-Appl.Math. and Phys. **70**, 83-88 (2008).
- 45. Relaxation times of an electrolytic cell subject to an external electric field: role of ambipolar and free diffusion phenomena**
A.L.Alexe-Ionescu, G.Barbero, I.Lelidis, M.Scalerandi, J.Phys.Chem.B **111**, 13287-13293 (2007).
- 46. Phenomenological model for optically induced easy direction**
A.L.Alexe-Ionescu, C.Uncheselu, L.Lucchetti, G.Barbero, Phys.Rev. E **75**, 021701 (2007).
- 47. Voltage decay time of a liquid crystals cell submitted to a large difference of potential**
F.Freire, A.L.Alexe-Ionescu, M.Scalerandi, G.Barbero, Appl.Phys.Letts. **89**, 214101(2006).
- 48. Role of adsorption phenomenon on the ionic equilibrium distribution and on the transient effects in electrolytic cells**
G.Barbero, F.Freire, M.Scalerandi, A.L.Alexe-Ionescu, J. Phys. Chem. B **110**, 17889-17897 (2006).
- 49. Transient effects in electrolytic cells submitted to an external field**
A.L.Alexe-Ionescu, G.Barbero, F.Freire, M.Scalerandi, Liq. Cryst. **33**, 1177-1187 (2006).
- 50. Significance of small voltage in impedance spectroscopy measurements on electrolytic cells**
G. Barbero, A.L. Alexe-Ionescu, I. Lelidis, J.Appl.Phys. **98**, 113703 (2005).
- 51. Role of diffuse layer of the ionic charge on the impedance spectroscopy of a cell of liquid**
G. Barbero, A.L.Alexe-Ionescu, Liq.Cryst. **32**, 943-949 (2005).
- 52. Comment on ‘Local elastic stability for nematic liquid crystals’**
A.L.Alexe-Ionescu, G. Barbero, Phys.Rev.E **72**, 013702 (2005);
- 53. A percolation Model to Evaluate the Correlation Length of Dye-Nematic Liquid Crystal Interaction**
A.L.Alexe-Ionescu, N.Eseanu, C.Dascalu, A.Th.Ionescu, I.Palarie, C.Uncheselu, Mol.Cryst.Liq.Cryst. **437**, 1403-1412 (2005).
- 54. Role of Delocalized Electrons in Polyaniline – NematogenCyanobiphenyls Interaction**
A.L.Alexe-Ionescu, A.Th.Ionescu, E.Barna, V.Barna, N.Scaramuzza, J.Phys.Chem.B **108**, 5487-5490 (2004).
- 55. Fast electro-optic switching in nematic liquid crystals**
A.L.Alexe-Ionescu, A.Th.Ionescu, E.S.Barna, V.Barna, N.Scaramuzza, Appl.Phys.Lett. **87**, 40-42 (2004).

- 56. Influence of an elastic deformation on the scalar nematic order parameter**
A.L.Alexe-Ionescu, G.Barbero, A.Th.Ionescu, E.S.Barna, Phys.Lett. A **314**, 332-338 (2003).
- 57. Role of Surface Order on the Total Electric Conduction in NLC Samples**
A.L.Alexe-Ionescu, A.Th.Ionescu, E.S.Barna, N.Scaramuzza, G.Strangi, Phys.Chem.B **107**, 5487-5490 (2003).
- 58. Periodic deformations in nematic liquid crystals**
A.L.Alexe-Ionescu, G.Barbero, I.Lelidis, Phys. Rev.E **66**, 061705 (2002).
- 59. Statistical theory of the compensating effect when anchoring with two orthogonal photoaligned polymers**
A.Th.Ionescu, E.Barna, G.Barbero, A.L.Alexe-Ionescu, Phys. Rev. E **65**, 041710 (2002).
- 60. Effects of charge asymmetry in a nematic liquid crystal in contact with an amorphous tungsten trioxide layer**
A.L.Alexe-Ionescu, A.Th.Ionescu, N.Scaramuzza, G.Strangi, C.Versace, Mol.Cryst.Liq.Cryst **372**, 321-337 (2001).
- 61. A statistical approach on the orienting photopolymer-nematic liquid crystal anchoring energy**
A.L.Alexe-Ionescu, R.Barberi, M.Iovane, A.Th.Ionescu, Phys.Rev.E **65**, 011703 (2001).
- 62. The liquid cristal-electrocromic interface:a p-n like electro-optic junction**
A.L.Alexe-Ionescu, A.Th.Ionescu, N.Scaramuzza, G.Strangi, C.Versace, G.Barbero, R.Bartolino, Phys. Rev.E **64**, 011708 (2001).
- 63. A tool to control nematic surface alignment: Anchoring competition**
M.Iovane, A.L.Alexe-Ionescu, R.Barberi, J.J.Bonvent, M.Giocondo, Mol.Cryst.Liq.Cryst. **360**, 61-79 (2001).
- 64. Surface breaking in lyotropic nematic liquid crystals induced by a magnetic field**
A.L.Alexe-Ionescu, L.Vega, J.J.Bonvent, E.A.Oliveira, Phys.Rev.E **60**, 6847-6851 (1999).
- 65. Nematic ordering in a cell with modulated surface anchoring: Effects of Flexoelectricity**
G.Barbero, G.Skacej, A.L.Alexe-Ionescu, S.Zumer, Phys.Rev.E **60**, 628-637 (1999).
- 66. Bistable nematic asimuthal alignment induced bu anchoring competition**
R. Barberi, J.J.Bonvent, M.Giocondo, M.Iovane, A.L.Alexe-Ionescu, J.Appl.Phys. **84**, 1321-1324 (1998).
- 67. Non-local description of nematic liquid crystals**
A.L.Alexe-Ionescu, G.Barbero, Liq.Cryst. **25** , 189-197 (1998).
- 68. Order Distribution Function of a Linear Polymerized Photopolymer Orienting a Nematic Liquid Crystal**
A.Th.Ionescu, R.Barberi, M.Giocondo, M.Iovane, A.L.Alexe-Ionescu, Phys. Rev.E **58** , 1967-1972 (1998).
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