



Ileana RĂU

Professor

PhD Advisor in Chemical Engineering

Faculty of Applied Chemistry and Materials Science

Department of General Chemistry



Contact Details

“Polizu” Campus

1-7 Gh. Polizu Street, S1, 011061 Bucharest, ROMANIA

Building: E, room 207

Tel.: +4012 4023907

Fax: +4021 3154193

E-mail: i_rau@chim.upb.ro

Education

- University POLITEHNICA Bucharest, Faculty of Industrial Chemistry, Chemical Engineering Division, 1989 – 1994, average mark 9.26/10; license mark 10/10; graduated mark: 9.63; title obtained: engineer

- Master. University POLITEHNICA Bucharest, Specialization: “Applied Thermodynamics and Electrochemistry”, 1994 – 1995, graduation mark:10/10.

Titles obtained:

- PhD in Chemistry, University POLITEHNICA Bucharest, 2002

- DSc. (HDR - Habilité de Diriger des Recherches) in Physics, University of Angers, France, 2007;

- DSc. (HDR - Habilité de Diriger des Recherches) in Chemical Engineering, University POLITEHNICA of Bucharest, Romania, 2013;

Biography

2014 – Present Professor, University POLITEHNICA of Bucharest

2009 – 2014, Associate Professor, University POLITEHNICA of Bucharest

2001 – 2009, Lecturer, University POLITEHNICA of Bucharest

1997 – 2001, Assistant Professor, University POLITEHNICA of Bucharest

1996 – 1997, Full – time Ph.D. student, University POLITEHNICA of Bucharest

1994 – 1996, Chemical Engineer, S.C. PROCELIA S.A. Brasov

- Specializations

- 27.03 – 31.03.1995 – Learning stage “Quality systems in experimental laboratories”. RELAR, Bucuresti;

- 14.09 – 15.09.2000 – participation at the workshop: “New foresights of ISO 17025. Its application in accreditation activity of experimental laboratories”, RENAR, București;

- 2.09 – 6.09.2002 – Participation at summer school: Nanostructures in Technology and Biomedicine, Jesi, Italia;

- 17.03 – 18.03.2003 – Participation at the workshop Principles and applications of the chemistry metrologies, organized in Bucharest by European Commission – Joint Research Centre Institute for Reference Materials and Measurements, Geel, Belgium.

- 15.03 – 22.04.2010 curs de FORMATOR cod COR 241205

- Research stagies

– University AUTONOMA de Barcelona, Spain – ian. – apr. 1999;- ian. – aug. 2000.

– CEA (Commissariat à l’Énergie Atomique) – Saclay, Franța; **Postdoc - Contract CEA – DRI** : Febr. 2004 – Febr. 2005,

– CEA (Commissariat à l’Énergie Atomique) – Saclay, Franța; **Postdoc – (Contract european FP 6)**: Febr. 2005 – Febr. 2006, CEA – Saclay, France

– Université d’Angers, Laboratoire POMA, Franțe ; **Postdoc – (Contract european FP 6)**: Febr. 2006 Febr. 2007

– ENS Lyon, Invited Professor, Mai – July 2010 (2 months)



Research

Research Interests

1. **Specialty fields:** Physical – chemical characterization of new materials and nanocomposites, Chemical kinetics, Nonlinear optics, Polymers, macromolecules, Applied spectroscopy: IR, UV – VIS, ERP and X – ray diffractometry for structural characterization of inorganic compounds and clay minerals
2. **Scientific works:** Characterization of NLO properties: harmonic generation techniques, Z-scan, propagation losses, degenerate four waves mixing; Characterization of thin films (m – lines, UV, VIS, IR spectroscopy, Optical dichroism); Linear and nonlinear spectroscopy; Spectral characterization of complex compounds of transitional metals; Paramagnetic and chromatic properties of solid compounds, etc; Chromatic characterization of some oxidic compounds; Pollutant adsorption (modelling and applications) from wastewater.
3. **Specialization: main field** – Bio – Chemical engineering; **other fields** – Magnetically intensified adsorption; Spectral methods for environmental monitoring, Quantifying Uncertainty in Analytical Measurement, Synthesis and spectral characterization of coordination compounds; Adsorbent materials;

Selected Research Projects (more than 10 as Responsible/Project Director)

1. Contract FP7 PIRSES-GA-2009-247544, “Functionalized biopolymers for application in molecular electronics and in photonics”, BIOMOLEC, **Project Responsible, partner UPB**
2. Grant EOARD (NATO) - UPB FA 8655-10-1-3073/2010: “Doping, ionic conductivity and photothermal stability of functionalized DNA for solar energy conversion and electrochromic applications” **Project Responsible/Project Director**
3. Grant EOARD (NATO) - UPB FA 8655-07-1-3002/2007: “Stability of thin films of DNA-CTMA and doped DNA-CTMA” **Project Responsible/Project Director**
4. Contract nr. 3/2012, Cod project PN-II-PT-PCCA-2011-3.1-0316, Bio-nanophotonics based on DNA supramolecular structures for all-optical integrated functionalities, BIO-NANO-PHOTO, Coordonator UPB, **Project Director**
5. Contract 279/7.10.2011, Cod PN-II-ID-PCE-2011-3-0505, “Elaboration and characterisation of functional biopolymers for photonic and electronic applications” FUBIO, **Project Director**
6. Project POS CCE, Operation 2.1.2, Axa II, Nr. Project/cod SMIS CSNR: 634/12575 Nr. Contract: 240/31.08.2010, „Setting up the Competence Centre for Advanced Photonics and Biophotonics” **BIOTRONICS, Project Responsible**

Academic interests

Teaching activity

Studies	Program Name/Faculty	Code	Course title	Activity type
Bachelor	Applied Electronics – ETTI	04.F.01.O.006	Chemistry	Course and Practical works
	Informatics Engineering – ETTI	04.F.01.O.006	Chemistry	Course and Practical works
	Technologies and Telecommunication systems – ETTI	04.F.01.O.006	Chemistry	Course and Practical works
	Applied Electronics – ETTI English	04.F.01.O.006	Chemistry	Course and Practical works
	Information Engineering, Applied Electronics, Mechanical Engineering – FILS English	F.1.O.031. E1	Chemistry	Course and seminar
	Ordinateur et Technologie de l'Information ; Ingénierie Electronique et Télécommunications ; Ingénierie Mécanique - FILS – French	F.1.O.031. F1	Chemistry (Chimie Generale)	Course and seminar
Master	Expertizarea Produselor Chimice, a Alimentelor si a Materialelor – CASM	MC6S3C21	Aesthetics and ergonometry	Course
	Expertizarea Produselor Chimice, a	MC6S3C16	Datarea si	Course and Practical works



	Alimentelor si a Materialelor – CASM		<i>expertizarea operelor de arta si a obiectelor de patrimoniu</i>	
	Advanced Technologies in Automotive Electronics – ETTI		<i>Chemical engineering for automotive electronics</i>	<i>Course and Practical works</i>
	Biocompatible materials and Biotechnologies – IM		Advanced Spectral Methods	<i>Practical works</i>

Other Teaching

- Project tutor for licence project of students of IIIrd year, TLMAC, Vth year – section Environmental Engineering, VIth year – Applied Thermodynamics and Electrochemistry.
- Tutor for research stages for French students of University Poitiers and University Limoges, France (research stages at University POLITEHNICA of Bucharest)
- Tutor for research stages of 2 PhD students from University of Angers, France (2006)
- Participation in license diplomas juries IIIrd year - College, section TLMAC
- Member in 2 juries for Associate Professor at University Transilvania of Brasov (February 2013)
- Member in 1 jury for Lecturer at University POLITEHNICA of Bucharest (Sept 2013)
- Member in juries for licence diploma for, TLMAC section
- Member in admission jury (interview)
- Member in several doctoral exams and seminars (starting to 2007)

Students tutoring (last 7 years)

- **3 PhD students in stage** in this moment (2014)
- **2 PhD students** tutored during the research stage in University of Angers - 2006 (Robert Czaplicki și Jerome Luc)
- **9 French students** from IUT Poitiers, France and **1 French student** from IUT Limoges who came for the research stage (1 – 2007, 1 – 2008, 2 – 2009, 2 – 2010, 4 – 2011, 3 – 2012, 3 – 2013)
- **3 Master Students** (Amandine Boumard – Universitatea din Angers, Franța and Mirela Moldoveanu – UPB, România – 2008, Nicoleta Radu – UPB, 2009)
- Member in tutoring team of 29 PhD students

Honours and Awards

Awards

- 2011 – Fellow SPIE
- 2007 – Laureat of European Descartes Award, , member of French team
- 2007 – 2013 Executive Unit for Financing Higher Education and Research Development and Innovation (UEFISCDI) and National University Research Council of Romania (CNCSIS) – several prizes for research results:

Keynote Lectures and Plenary Lectures

1. **Ileana Rău**, R. Popescu, G. Tihan, A. Boumard, A. Mesmin, A. Meghea, J. G. Grote, F. Kajzar, *Biopolymers - Novel Materials for Application in Photonics*, The 6th International Conference “Advanced Optical Materials and Devices”, Riga, Latvia, 24-27 August 2008, **plenary lecture**
2. A.C. Mitus, G. Pawlik, **Ileana Rău**, Francois Kajzar, *Pre-Polymers History Paradigm for Poled Guest-Host Systems: Experiment and Monte Carlo Studies*, X ICFPAM Santiago de Chile, Chile sept. 2009, **plenary lecture**
3. **Ileana Rău**, *DNA based materials Processing, characterisation, stability and applications* XI ICFPAM, Pretoria, Africa de Sud, 22 – 27 mai 2011 **Keynote Lecture**
4. **Ileana Rău**, *DNA complexes with NLO chromophors for biophotonics*, International Conference on Advanced Materials for Photonics, Sensing and Energy Conversion Applications, El Jadida, Maroc, Dec. 2012 – **plenary lecture**

Invited Lectures (more than 40 – selection)



1. **Ileana Rău**, S. Bartkiewicz, A. Miniewicz, B. Sahraoui, F. Kajzar, "*Photochromism in thin films containing azodyes*", 6th International Conference on Transparent Optical Networks Wroclaw, Poland, July 4 - 8, 2004, **invited lecture**
2. **Ileana Rău**, P.-A. Chollet, F. Kajzar, R. Zamboni, "*Oriented conjugated polymer thin films for all optical switching applications*", Photonics West 2005 - Organic Photonic Materials and Devices VII, San Jose, SUA, 24 - 26 Jan. 2005, **invited lecture**
3. **Ileana Rău**, R. Centore, A. Carella, P. Armatys, P. - A. Chollet, F. Kajzar, "*New Polyurethane Based Push - Pull Functionalised Polymers for NLO Applications*" 7th International Conference on Transparent Optical Networks Barcelona, Spain, July 3 - 7, 2005, **invited lecture**
4. **Ileana Rău**, P. Armatys, P.-A. Chollet, Francois Kajzar, Roberto Zamboni, "*Conjugated Polymers Oriented Organic Thin Films For Nonlinear Optics*" 8th International Conference on Frontiers and Advanced Materials, ICFPAM 2005, Cancun, Mexico, 22 - 27 aprilie 2005, **invited lecture**
5. **Ileana Rău**, P.-A. Chollet, P. Armatys, F. Kajzar, R. Centore, A. Carella, A. J. Attias, "*Novel functionalized polymers for applications in quadratic nonlinear optics*", Photonics West 2006 - Organic Photonic Materials and Devices VIII, San Jose, SUA, 21 - 26 Jan. 2006, **invited lecture**
6. **Ileana Rău**, R. Czaplicki, B. Sahraoui, F. Kajzar, D. A. Leigh, J. Berna - Canovas, "*Linear and nonlinear optical properties of selected rotaxanes*", Photonic North, Quebec, Canada, 4 - 9 June 2006, **invited lecture**
7. **Ileana Rău**, R. Czaplicki, A. Hameau, B. Sahraoui, G. Boudebs, O. Krupka, D. A. Leigh, J. Berna - Canovas, F. Kajzar, "*On the Importance of Rotational Contributions to Cubic Suceptibility in Catenanes and Rotaxanes*", Photonics West 2007 - Organic Photonic Materials and Devices IX, San Jose, SUA, 20 - 25 Jan. 2007, **invited lecture**
8. **Ileana Rău**, "*New Approach of UPB - CNC Concerning DNA Based Films for Optoelectronic Applications*", Air Force Research Laboratory International Workshop on Biotronics, Hawaii, SUA, 29 April - 4 May, 2007 **invited lecture**
9. **Ileana Rău**, "*Preparation and characterization of organic thin films for optoelectronics applications*" 9th International Conference on Frontiers and Advanced Materials, ICFPAM 2007, Krakow, Poland, 8 - 12 July 2007, **invited lecture**
10. **Ileana Rău**, "*Microemulsion New Method for DNA Functionalization*", Nano - Bio - Photonics: Converging Science and Technologies, Focal Aspects and Perspectives, Rome, Italy, September 14, 2007, **invited lecture**
11. **Ileana Rău**, F. Kajzar, P. Armatys, J. Niziol, P.-A. Chollet, "*Engineering and performances of pi conjugated polymers for all optical switching applications*" SPIE Europe Optics & Photonics in Security and Defense, Optical Materials in Defense Systems Technology, Florence, Italy, 17 - 20 September, 2007, **invited lecture**
12. **Ileana Rău**, "*Relaxation study on organic thin films for optoelectronics applications*", Photonics West 2008 - Organic Photonic Materials and Devices X, San Jose, SUA, 19 - 24 Jan. 2008, **invited lecture**
13. **Ileana Rău**, R. Popescu, G. Tihan, I. Demetrescu, A. Meghea, J. G. Grote, F. Kajzar, "*Degradation kinetics of biopolymers based thin films*", 2nd International Conference on Functional Materials and Devices, 2008 (ICFMD-2008), Kuala Lumpur, Malaysia, Malaysia, 16 - 19 June 2008, **invited lecture**
14. **Ileana Rău**, R. Popescu, G. Tihan, I. Demetrescu, A. Meghea, J. G. Grote, F. Kajzar, "*Biopolymer Thin Films: Processing, Properties and Stability*", SPIE Optics & Photonics, Nanoscience and Engineering, Nanobiosystems: Processing, Characterization, and Applications, San Diego, USA, 10 - 14 August, 2008, **invited lecture**
15. **Ileana Rău**, R. Popescu, G. Tihan, A. Boumard, A. Mesmin, V. Trandafir, I. Demetrescu, A. Meghea, J. G. Grote, F. Kajzar, "*Stability of DNA and collagen-based thin films*", Photonics West 2008 - Organic Photonic Materials and Devices XI, San Jose, SUA, 24 - 29 Jan. 2009, **invited lecture**
16. **Ileana Rău**, "*Photo-, thermal- and chemical stability of pure and functionalized DNA and collagen films*", International Symposium on Materials and Devices for Nonlinear Optics, ISOPL'5, Porquerolles, Franta, 26 June-1 July 2009, **invited lecture**
17. **Ileana Rău**, R. Popescu, M. Moldoveanu, A. Meghea, J. G. Grote, F. Kajzar, "*On the Stability and Degradation of DNA and Collagen Based Thin Films*", X ICFPAM Santiago de Chile, Chile sept. 2009, **invited lecture**
18. **Ileana Rău**, R. Popescu, M. Moldoveanu, A. Meghea, J. G. Grote, F. Kajzar, "*Degradation of Biopolymer-Based Thin Films*", Photonics West 2010 - Organic Photonic Materials and Devices XI, San Francisco, SUA, 24 - 29 Jan. 2010, **invited lecture**
19. **Ileana Rău**, "*Degradation of Biopolymer-Based Thin Films*", 2010 International Workshop on Biotronics, San Juan, Puerto Rico, March 29, 2010 - April 2, 2010, **invited lecture**



20. F. Kajzar, O. Krupka, A. Mitus, G. Pawlik, **Ileana Rău**, *Concentration variation of quadratic NLO susceptibility in PMMA-DR1 side chain polymer* Photonics West 2011 - Organic Photonic Materials and Devices XII, San Francisco, SUA, 22 – 27 Jan. 2011, **invited lecture**
21. **Ileana Rău**, R. Zgârian, A. Țane, A. Meghea, F. Kajzar, *DNA based materials with enhanced fluorescent properties*, International Workshop on Nano and Bio-Photonics (IWNBP), St. Germain au Mont d'Or, Franta, 23 – 28 octombrie 2011, **invited lecture**
22. **Ileana Rău**, *DNA Based Materials. Processing, Characterisation and Stability*, International Conference on PhotonicsPolymers / ICAPP-2011, Yokohama, Japonia, 1 – decembrie 2011, **invited lecture**
23. **Ileana Rău**, A. Meghea, A. M. Manea, A. Tane, *Doping and characterization of nonlinear optical properties of DNA complexes with NLO chromophores*, SPIE Optics & Photonics, Nanoscience and Engineering, Nanobiosystems: Processing, Characterization, and Applications V, San Diego, USA, August, 2012, **invited lecture**
24. **Ileana Rău**, I. Iosub, F. Kajzar, M. Makowska-Janusik, J. Dlugosz, A. Meghea, A. Tane, R. Zgarian, *On electronic structure and optical properties of anthocyanidines extracted from grapes*, SPIE Europe Optics & Photonics in Security and Defense, Optical Materials in Defense Systems Technology, Edinburgh, United Kingdom, September, 2012, **invited lecture**
25. **Ileana Rău**, Ana-Maria Manea, Roxana Zgarian, Alexandrina Tane, Aurelia Meghea, Francois Kajzar, **Functionalization and linear as well nonlinear optical properties characterization of DNA biopolymer based complexes**, *Photonic applications of photochromic molecules* Photonics West 2013 - Organic Photonic Materials and Devices XV, San Francisco, SUA, 4 – 6 February, 2013, **invited lecture**
26. **Ileana Rău**, *Deoxyribonucleic acid (DNA): a new nanomaterial for applications in electronics and in photonics*, SPIE Optics & Photonics, Nanoscience and Engineering, Nanobiosystems: Processing, Characterization, and Applications VI, San Diego, USA, August, 2013, **invited lecture**
27. **Ileana Rău**, A. Meghea, A. Tane, F. Kajzar, R. Zgarian, G. Tihan, *Matrix influence on photoluminescence of organic dyes in solid medium*, SPIE Europe Optics & Photonics in Security and Defense, Optical Materials in Defense Systems Technology, Optical Materials and Biomaterials in Security and Defence Systems Technology X, Dresden, Germany, 23 – 26 Sept. 2013, **invited lecture**
28. **Ileana Rău**, *DNA based materials for biophotonics applications*, Workshop on Organic Electronics and Nanophotonics – WOREN, Zlotckie, Polonia, 17 – 21 February 2013, **invited lecture**
29. **Ileana Rău**, M. Mîndroiu, G. Tihan, M.L. Mircea, H. C. Leite de Oliveira, A. Pawlicka, F. Kajzar, *Application of deoxyribonucleic acid (DNA) in electronics and in photonics*, International Workshop on Nano and Bio-Photonics (IWNBP), French-Korean Meeting on Functional Material for Organic Optics, Electronics, and Devices (FUNMOOD), Biarritz, France, 3-8 November 2013, **invited lecture**
30. **Ileana Rău**, G. Tihan, M. Mindroiu, R. Zgarian, F. Kajzar, H. Cunha Leite de Oliveira, A. Pawlicka, *DNA based materials for application in electro-optics*, XII ICFPAM, Auckland, New Zealand, 8 – 13 December, 2013, **invited lecture**

Membership of Professional Bodies

- SPIE Member (The International Society for Optical Engineering),
- AFONL Member (French – American – Japanese Association for NLO promotion)
- SRCh Member (Romanian Society of Chemistry)

Other Significant Activities

- **Scientific Reviewer** for: Molecular Crystal Liquid Crystal, Optical Materials, Nonlinear Optics & Quantum Optics, Journal of Materials Research Innovations, SPIE Proceedings, Optical Engineering, Journal of Energetic Materials, Physical Organic Chemistry.
- **Topical Editor for Applied Optics (OSA Journal)**
- Member of **Editorial Board** of Nonlinear Optics&Quantum Optics Journal
- Recognizing of research activities at University POLITEHNICA of Bucharest by highlighting in Laser Focus World Journal (septembrie 2008) By Dr. James Grote.
- **Member in four PhD juries** (2 in Morocco, 2 in France)
- **European FP7 Expert evaluator** and for **National Program PN II**
- **Member in Scientific Committee** for ICTON MW'07 (International Conference on Transparent Optical Network Sousse, Tunisia, 6 – 8 Decembrie 2007; 2nd ICTON MW'08 (International Conference on Transparent Optical Network) Marrackesh, Maroc, Decembrie 2008
- **Member in International Committee Program** for 8th ICFPAM (International Conference on Polymers and Advanced Materials), Cancun, 22 – 27 April, 2005, 9th ICFPAM (International Conference on Polymers and



Advanced Materials), Cracovia, Polonia, 8 – 12 July, 2007; 10th ICFPAM (International Conference on Polymers and Advanced Materials), Santiago de Chile, Chile, 30 Sept – 4 Oct, 2009, for SPIE Optics & Photonics, Nanoscience and Engineering, Nanobiotronics, San Diego, SUA, 26 – 30 August, 2007; SPIE - Photonic West Conference, Organic Photonic Materials and Devices, San Jose, SUA, Ianuarie, 2008, 2009, 2010, 2011, 2012, 2013; 2014 SPIE Optics & Photonics/Nanoscience and Engineering, Nanobiosystems: Processing, Characterization, and Applications II, San Diego, SUA, 10 – 14 August, 2008; 7th ICEPOM (International Conference on Electronic Process in Organic Materials, Lvov, Ucraina, 26 – 30 mai 2008 SPIE Europe Security + Defence/Optical Materials in Defence Systems Technology 2008, 2009, 2010, 2011, 2012, 2013, 2014

- **Member in Technical Organizing Committee** NanoScience + Engineering, San Diego 2009, 2010, 2011, 2012, 2013, 2014
- **Member in organizing committee** for 7th International Conference on Polymers and Advanced Materials (ICFPAM), Emerging and Transferring New Technologies, Bucharest, 10 – 15 June 2003 (secretar) and for 10th ERPOS (International Conference on Electrical and Related Properties of Organic Solids and Polymers), Cargese, France, 10 – 15 July, 2005
- **ViceChair** 11th and 12th ICFPAM (International Conference on Polymers and Advanced Materials), Pretoria, South Africa, May 2011, Auckland New Zealand, December 2013
- **Chair** of First, Second, Third and Fourth International Workshop on Advanced Nano- and Biomaterials and Their Device Applications, organized jointly with First French-Romanian Topical Meeting on Nano and Biomaterials - Poiana Brasov, Romania, 17 – 21 sept. 2008, Sibiu, Romania, 16 – 20 sept. 2010, Timisoara, Romania, sept. 2012, Iasi, Romania, sept. 2014
- **Chair** of Program Committee SPIE Optics & Photonics, Nanoscience and Engineering, Nanobiosystems: Processing, Characterization, and Applications, San Diego, 2009, 2010, 2011, 2012, 2013, 2014

Further Information

Hirsch Index: 12, total number of citations 580 (Scopus, 31 March 2014)

Publications

Books

1. **Ileana Rău** si Francois Kajzar, *Multiphoton Processes in Organic Materials and their Application*, Edition des archives contemporaines, France ISBN 9782813000514 and Old City Publishing, Philadelphia, SUA, ISBN 978-1-933153-15-5 , 399 pag., 2012 – monograph
2. **Ileana Rău**, *Novel Materials for light intensity modulation*, Editura Printech, ISBN 978-606-521-242-8, 113 pag., 2009 – monograph
3. **Ileana Rău**, S. A. Popescu, *General Chemistry*, Editura Printech, ISBN 978-606-521-240-4, 112 pag., 2009 – student book
4. M. Guțul-Văluță, M. Muntean, M. Dinculescu, **Ileana Rău**, “*Proprietățile fizico-chimice și caracteristicile atomilor, substanțelor simple și compuse, corelate cu poziția elementelor în sistemul periodic. Noțiuni teoretice. Exerciții și probleme*”, Litografia UPB, București, 1997 (110 pag.). – student book
5. M. Guțul-Văluță, **Ileana Rău**, I. Jitaru, C. Matei, M. Muntean, A. Suciuc, “*Legătura chimică*” Partea I, “*Teoria electronică clasică asupra legăturii chimice. Exerciții și probleme*”, Litografia UPB, 1998, (115 pag.) student book
6. **Ileana Rău** (în grup de autori), “*Probleme teoretice și practice*”, Concursul Național de Chimie pentru elevi, “Costin D. Nenițescu” București, Ed. Flomarco, 2002, ISBN 973-96735-4-3 - student book.

Chapters

1. F. Kajzar, **Ileana Rău**, “*Nonlinear Optics - Materials: Organic Nonlinear Materials*”, **chapter** in Encyclopedia of Modern Optics, edited by Robert D. Guenther, Duncan G. Steel and Leopold Bayvel, Elsevier, Oxford, 2004. ISBN 0-12-227600-0, pp. 42 – 60
2. **Ileana Rău**, F. Kajzar, “*Nonlinear Spectroscopy in organic media*”, **chapter** in *Multiphoton Processes in Organic Materials and their Application*, Edition des archives contemporaines, France ISBN 9782813000514 and Old City Publishing, Philadelphia, SUA, ISBN 978-1-933153-15-5, 2012, pp. 3 – 78

Journal Articles – more than 90 – selection

1. **Ileana Rău**, A. Gonzalo, M. Valiente, *Arsenic (V) adsorption immobilized iron mediation. Modeling of the adsorption process and influence of interfering anions*, React. & Functional Polymers, **54**, (2003), p. 85 – 94;



2. **Ileana Rău**, P. Armatys, P.A. Chollet, F. Kajzar, C. AndRăud, Y. Bretonnière, *Aggregation: A new mechanism of relaxation of polar order in electro – optic polymers*, Chem. Phys. Lett., **442** (2007), p. 329 – 333
3. **Ileana Rău**, “On the Mechanisms of Relaxation in Electro-Optic Polymers”, Mol. Cryst. Liq. Cryst, **485**, (2008), p. 114/[862] – 124/[872]
4. D. Turcanu-Carutiu, **Ileana Rău**, A. Meghea, “Spectral and Chromatic Analysis in Art Work Authentication” Mol. Cryst. Liq. Cryst, **484**, (2008), p. 213/[579] – 237/[603]
5. **Ileana Rău**, F. Kajzar, A. Humeau, J. Luc, B. Sahraoui, G. Boudebs, *Comparison of Z-scan and THG derived nonlinear index of refraction in selected organic solvents*, JOSA B, **25** (10), (2008), p. 1738 – 1747
6. M. Moldoveanu, A. Meghea, R. Popescu, J. G. Grote, F. Kajzar, **Ileana Rău**, *On the Stability and Degradation of DNA Based Thin Films*, Mol. Cryst. Liq. Cryst., **523**, (2010) p. 182/[754]–190/[762]
7. **Ileana Rău**, A. Tane, R. Zgarian, A. Meghea, J. G. Grote, F. Kajzar, *Stability of Selected Chromophores in Biopolymer Matrix*, Mol. Cryst. Liq. Cryst., **554:1**, (2012), p. 43 – 55
8. I. Iosub, F. Kajzar, M. Makowska-Janusik, A. Meghea, A. Tane, Ileana Rău, *Electronic structure and optical properties of some anthocyanins extracted from grapes*, Optical Materials, **34** (10), (2012) p. 1644 – 1650
9. **Ileana Rău**, J. G. Grote, F. Kajzar, A. Pawlicka, *DNA - novel nanomaterial for applications in photonics and in electronics*, Comptes Rendus de Physique, **13**, (2012), p. 853 – 864, <http://dx.doi.org/10.1016/j.crhy.2012.09.005>
10. **Ileana Rău**, A. Szukalski, L. Sznitko, K. Palewska, A. Miniewicz, S. Bartkiewicz, B. Sahraoui, F. Kajzar, J. Mysliwiec *Amplified spontaneous emission of rhodamine 6G embedded in pure deoxyribonucleic acid*, Applied Physics Letters, **101** (17), (2012), article ID 019245APL
11. **Ileana Rău**, J. G. Grote, F. Kajzar, A. Pawlicka, *DNA - novel nanomaterial for applications in photonics and in electronics*, Comptes Rendus de Physique, **13**, (2012), p. 853 – 864, <http://dx.doi.org/10.1016/j.crhy.2012.09.005>
12. R. C. Barbaresso, **Ileana Rău**, R. G. Zgârian, A. Meghea, M. V. Ghica, *Niflumic acid-collagen delivery systems used as anti-inflammatory drugs and analgesics in dentistry*, Comptes Rendus de Chimie, <http://dx.doi.org/10.1016/j.crci.2013.07.007>, (2013)

Patents

1. A. Meghea, N. Radu, E. Marica, **Ileana Rău**, L. Sandru, “New fertilizers based on microbial mass” : Brevet nr. RO 121557
2. **Ileana Rău**, F. Kajzar, A. Meghea, A. Marin, “Optically Tunable Interferometer”, registered with nr. A00730/16.11.2012

Proceedings Conferences – more than 35

Guest Editor

1. “Molecular Crystals and Liquid Crystals”, Proceedings of the 7th International Conference on Frontiers and Advanced Materials, ICFPAM 2003, **415 – 418**, 2004;
2. “Molecular Crystals and Liquid Crystals”, Proceedings of the 8th International Conference on Frontiers and Advanced Materials, ICFPAM 2005, **446 – 448**, 2006;
3. “Nonlinear Optics, Quantum Optics”, Proceedings of the 3rd International Conference on Photoresponsive Organics and Polymers (3rd ICPOP) and the 2nd French – Korean Symposium on Photonic Materials and Devices (2nd KF – PMD), **35** (1 – 3), 2006;
4. “Nonlinear Optics, Quantum Optics”, Proceedings of the 10th ERPOS (International Conference on Electrical and Related Properties of Organic Solids and Polymers), 2007,
5. “Molecular Crystals and Liquid Crystals”, Proceedings of the 9th International Conference on Frontiers and Advanced Materials, ICFPAM 2007, **483 – 486**, 2008,
6. “Nonlinear Optics, Quantum Optics”, **38**, (2), 2008,
7. “Nonlinear Optics, Quantum Optics”, Proceedings of **First International Workshop on Advanced Nano- and Biomaterials and Their Device Applications Organized jointly with French-Romanian Topical Meeting on Nano and Biomaterials 2008**, **38** (3-4) - **39**, (1), 2009
8. “Nonlinear Optics, Quantum Optics”, Special issue, Materials and Devices for Nonlinear Optics, **40** (1-4), 2010
9. “Molecular Crystals and Liquid Crystals”, Proceedings of the 10th International Conference on Frontiers and Advanced Materials, ICFPAM 2009, **520 – 523**, 2010.
10. Nanobiosystems: Processing, Characterization, and Applications II (Proceedings Volume) Proceedings of SPIE Volume: 7403, Editor(s): Norihisa Kobayashi; Fahima Ouchen; Ileana Rău Date: 20 August 2010, ISBN: 9780819476937



11. Nanobiosystems: Processing, Characterization, and Applications III (Proceedings Volume) Proceedings of SPIE Volume: 7765, Editor(s): Norihisa Kobayashi; Fahima Ouchen; Ileana Rău Date: 20 August 2010, ISBN: 9780819482617
12. “Nonlinear Optics, Quantum Optics”, Eds. Ileana Rău and F. Kajzar, Special issue, Biomaterials, **42** (3-4), 2011
13. Nanobiosystems: Processing, Characterization, and Applications IV (Proceedings Volume) Proceedings of SPIE Volume: 8103, Editor(s): Norihisa Kobayashi; Fahima Ouchen; Ileana Rău Date: 2 Sept. 2011, ISBN: 9780819487131
14. “Nonlinear Optics, Quantum Optics”, Proceedings of **Second International Workshop on Advanced Nano- and Biomaterials and Their Device Applications Organized jointly with French-Romanian Topical Meeting on Nano and Biomaterials 2010**, **44** (2-3), 2012
15. “Molecular Crystals and Liquid Crystals”, Proceedings of the 11th International Conference on Frontiers and Advanced Materials, ICFPAM 2011, **554 – 556**, 2012
16. Nanobiosystems: Processing, Characterization, and Applications V (Proceedings Volume) Proceedings of SPIE Volume: 8464, Editor(s): Norihisa Kobayashi; Fahima Ouchen; Ileana Rău Date: 27 Sept. 2012, ISBN: 9780819491817
17. Nanobiosystems: Processing, Characterization, and Applications V (Proceedings Volume) Proceedings of SPIE Volume: 8817, Editor(s): Norihisa Kobayashi; Fahima Ouchen; Ileana Rău Date: 8 Oct. 2013, ISBN: 9780819496676