

# Europass Curriculum Vitae

## Personal information

First name(s) / Surname(s) **ANDREI Ionut-Relu**

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Nationality Romanian

Date of birth 30.09.1978

Gender Male

## Work experience

Dates Since Nov. 2010

Occupation or position held Senior scientist grade III

Main activities and responsibilities Laser physics and technology. Chaos in laser systems. Physics of micro- and nano-droplets. Spectroscopy of droplets.

Name and address of employer National Institute for Lasers, Plasma and Radiation Physics (NILPRP), Lasers Department, Laser Spectroscopy Group (LSG), PO Box MG-36, Atomistilor 409, Magurele-Bucharest, 077125, Romania

Type of business or sector Research

Dates 2006 - 2010

Occupation or position held Research scientist

Main activities and responsibilities Laser physics and technology. Laser systems. Chaos in laser systems. Laser spectroscopy. Econophysics. Physics of droplets.

Name and address of employer NILPRP, Lasers Department, LSG

Type of business or sector Research

Name and address of employer NILPRP, Lasers Department, LSG

Type of business or sector Research

Dates 2002 -2006

Occupation or position held Research assistant

Main activities and responsibilities Laser physics and technology. Laser systems. Chaos in laser systems. Laser spectroscopy.

Name and address of employer NILPRP, Lasers Department, LSG

Type of business or sector Research

*On leave from NILPRP, see Annexe I*

## Education and training

Dates Since October 2004

Title of qualification awarded Ph.D. student

Principal subjects/occupational skills covered Specialization in "Physics"

Name and type of organisation providing education and training University of Bucharest, Faculty of Physics

Level in national or international classification | PhD student

Dates | 2002 -2004

Title of qualification awarded | Physicist

Principal subjects/occupational skills covered | Specialization studies in "Optics. Spectroscopy. Plasma. Lasers"

Name and type of organisation providing education and training | University of Bucharest, Faculty of Physics

Level in national or international classification | Master

Dates | 1997 -2002

Title of qualification awarded | Diplomat Engineer

Principal subjects/occupational skills covered | Specialization studies in "Laser technology"

Name and type of organisation providing education and training | University of Bucharest, Faculty of Physics

Level in national or international classification | Basic in science

Dates | 1993 -1997

Title of qualification awarded | High school

Principal subjects/occupational skills covered | Mathematics and Physics

Name and type of organisation providing education and training | High School of "Mathematics and Physics No. 2", actually named " Grigore Moisil", Urziceni - Ialomita, Romania

Level in national or international classification | Baccalaureate

**Personal skills and competences**

Mother tongue(s) | **Romanian**

Other language(s)

Self-assessment

*European level (\*)*

**English**

**French**

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production			
C1	Proficient user	C1	Proficient user	C1	Proficient user	C1	Independent user	C1	Independent user
A2	Basic user	A2	Basic user	A2	Basic user	A2	Basic user	A2	Basic user

Organisational skills and competences

Member in the Organizing Committee of Scientific Manifestations:  
 Seminar „*Bridging Economists with Physicists*“, 29-30 October 2004, ASE – Bucharest.  
 Summer School on "*Econophysics and Complexity*", Academy of Economic Studies Bucharest, 02-09 September 2005, Navodari, Romania.  
 Summer School on "*Econophysics and Complexity*", Academy of Economic Studies Bucharest, 25Aug.-02 Sep. 2006, Sinaia, Romania.  
 Summer School on "*Econophysics and Complexity*", Academy of Economic Studies Bucharest, 01-09 Sep. 2007, Paltinis - Sibiu, Romania.  
 Joint Conference of the 7<sup>th</sup> MC & WG Meetings. COST ACTION P21 „The physics of droplets“, Bucharest, Romania, May, 2009.  
 International Student Workshop on Laser Applications 2010 (ISWLA10), Bran, Romania, May 25-28, 2010.

Technical skills and competences

Technical specific skills for working in a Laser Spectroscopy; Laser physics and technology Laboratory

Computer skills and competences

Microsoft Windows, Microsoft Office, Corel Draw, Origin, Matlab

Driving licence | Since 1996

**Annexes** | Annexe I Stages abroad in research field  
Annexe II List of scientific publications  
Annexe III List of contribution to conferences

## Annexe I

### Stages abroad in research field

Periode	Country	Purpose of visit
November, 2006	France	visiting researcher <sup>a</sup>
February 2008	Italy	COST - STSM research stage <sup>b</sup>

<sup>a</sup> performed at CNR-IENI National Research Council, Institute for Energetics and Interphases, Genova, Italy, subject "Wetting properties of droplets containing drugs on superhydrophobic surfaces".

<sup>b</sup> Laboratoire de Chimie des Matériaux et Interfaces – LCMI, U.F.R. Sciences et Technique - Université de Franche-Comté, Besançon, France.

## Annexe II

### List of scientific publications

1. M.L. Pascu, G.V. Popescu, C.M. Ticos, **I.R. Andrei**, *Unresonant interaction of laser beams with microdroplets*, accepted for publication in Journal of the European Optical Society - Rapid publications (January 2012).
2. V. Nastasa, K. Samaras, **I.R. Andrei**, M.L. Pascu, T. Karapantsios, *Study of the formation of micro and nano-droplets containing immiscible solutions*, Colloids and Surfaces A: Physicochemical and Engineering Aspects, Vol. 382, No.1-3, p. 246-250, 2011.
3. **I.R. Andrei**, C.M. Ticos, M. Bulinski, M.L. Pascu, *Experimental control of power dropouts by current modulation in a semiconductor laser with optical feedback*, Physica Scripta, 83, 055402, 2011.
4. M.L. Pascu, Adriana Smarandache, M. Boni, Jette Kristiansen, V. Nastasa, **I. R. Andrei**, *Spectral properties of molecular solutions*, Romanian Reports in Physics, Vol. 63, Supplement, P. 1267–1284, 2011.
5. Pascu M.L.; Nastasa V.; Smarandache A.; Militaru A.; Martins A.; Viveiros M.; Boni M.; **Andrei I.R.**; Pascu A.; Staicu A.; Molnar J.; Fanning S.; Amaral L., *Direct Modification of Bioactive Phenothiazines by Exposure to Laser Radiation*, Recent Patents on Anti-Infective Drug Discovery, Volume 6, Number 2, pp. 147-157(11), May 2011.
6. M. L. Pascu, **I. R. Andrei**, V. Nastasa, M. Boni, G. V. Popescu, *Laser Radiation Interaction With Fluorophores In Micro-/Nano-Droplets Of Solutions*, Lasers Med Sci 26 , Suppl 1: S16, 2011.
7. **I.R. Andrei**, *Characterization of chaotic emission of a laser diode in optical feedback conditions produced by different external reflectors*, OAM-Rapid Communications vol. 4, No. 10, 2010.
8. V. Nastasa, V. Pradines, **I.R. Andrei**, M. Boni, M.L. Pascu, R. Miller, *Studies about the generation and characterisation of microdroplets with a controlled content*, OAM- Rapid Communications vol. 4, No. 11, 2010.
9. M.L. Pascu, A. Pascu, A. Staicu, **I.R. Andrei**, V. Nastasa, *Tunable lasers at the laser spectroscopy group: short form history from the beginnings to date*, Romanian Reports in Physics, Vol. 62, No. 3, p. 425-431, 2010
10. M.L. Pascu, **I.R. Andrei**, M. Ferrari, Angela Staicu, Adriana Smarandache, A. Mahamoud, V. Nastasa, L. Liggieri, *Laser beams resonant interaction with micro-droplets which have a controlled content*, Colloids and Surfaces A: Physicochemical and Engineering Aspects, Vol. 365, No.1-3, p. 83-88, 2010.
11. **I.R. Andrei**, C. Ticos, M. Bulinski, M.L. Pascu, *Chaotic behaviour in the emission of semiconductor lasers optically coupled with an external cavity*, Journal of Optoelectronics and Advanced Materials, Vol. 12, No. 1, p. 63-67, 2010.
12. M. Bulinski, Catalin M. Ticos, **I. R. Andrei**, *M:N phase synchronization of LFF in an chaotic ECSL system*, Noise and Fluctuations in Photonics, Quantum Optics, and Communications - PROCEEDINGS OF THE SOCIETY OF PHOTO-OPTICAL INSTRUMENTATION ENGINEERS (SPIE), Vol. 6603, p. 660329, 2007.
13. C.M. Ticos, M. Bulinski, **I.R. Andrei** and M.L. Pascu, *Power dropout control by optical phase modulation in a chaotic semiconductor laser*, Journal of the Optical Society of America B, vol. 23, No. 12, p. 2486-2493, December 2006.

14. **I.R.Andrei**, M.Bulinski, *Methods and application of the chaos control*, Proceedings of The 2006 International Conference on Commerce, Faculty of Commerce, Academy of Economic Studies, Bucharest, Romania, 27-29 March 2006, CD, ISBN-10 973-594-785-4 ; ISBN-13 978-973-594-785-9.
15. F. Ungureanu, L. Voicu, **I.R. Andrei**, *The modification of phenyl-pyridine compounds under UV irradiation: FTIR investigation*, Journal of Optoelectronics and Advance Materials, Vol. 8, No. 1, p. 315-318, February 2006.
16. **I.R.Andrei**, M.L.Pascu, M.Bulinski, *The analysis of data encoding characteristics for chaotic coupling of two multimode laser diodes with external cavity*, Romanian Reports in Physics, Vol. 57, No. 3, p. 425-431, 2005.
17. M.Bulinski, M.L.Pascu, **I.R.Andrei**, *Phase synchronisation and coding chaos with semiconductor lasers*, Journal of Optoelectronics and Advance Materials, Vol. 6, No. 1, p. 77-86, March 2004.

### Annexe III

#### List of contribution to conferences (oral presentation)

1. **I.R.Andrei**, C.M. Ticos, M.Bulinski, G.V. Popescu, M.L. Pascu, *The experimental analyze of chaotic synchronization of two coupled external – cavity semiconductor lasers*, The 2011 Scientific Communications Session of Physics Faculty, University of Bucharest, Bucharest, Romania, 17 June 2011.
2. **I.R. Andrei**, C.M. Ticos, M. Bulinski, M.L. Pascu, *Experimental control of low-frequency fluctuations by current modulation in a semiconductor laser with optical feedback*, International Student Workshop on Laser Applications 2011 (ISWLA11), Bran, Romania, May 31 – June 04, 2011.
3. M. Boni, V. Nastasa, **I.R. Andrei**, G.V. Popescu, M.L. Pascu, *Optical emission by micro- and nano- droplets*, International Student Workshop on Laser Applications 2011, Bran, 31 Mai- 4 Iunie, pg 20, ISBN 978-973-737-984-9, 2011.
4. M. L. Pascu, **I. R. Andrei**, V. Nastasa, M. Boni, G. V. Popescu, *Laser Radiation Interaction with Fluorofores In Micro-/Nano-Droplets Of Solutions*, LASER FLORENCE 2100, Florence, 3-6 november 2011.
5. M. Boni, V. Nastasa, **I.R. Andrei**, C.Lungu, M. L. Pascu, *Calorimetric measurements on microdroplets*, Central and Eastern European Committee for Thermal Analysis and Calorimetry, Craiova, Romania, 7- 10 september 2011.
6. M. L. Pascu, **I. R. Andrei**, Adriana Smarandache, C. Ticos, V. Nastasa, *Unresonant interaction of laser beams with microdroplets*, EOSOF 2011, 23-25 May 2011, Munich, Germany (lucreare invitata)
7. Irina Zgura, Traian Beica, Ligia Frunza, Florin Cotorobai, Stefan Frunza, **Ionut R. Andrei**, Mihail Pascu, *Drop shape analysis - a method to characterize drug solutions/poster*, 11th International Balkan Workshop on Applied Physics, Constanta, July 07-09, 2010.
8. **I.R.Andrei**, C.M. Ticos, M.Bulinski, M.L. Pascu, *Effects of the reflector type on the external-cavity semiconductor laser emission*, The 2010 Scientific Communications Session of Physics Faculty, University of Bucharest, Bucharest, Romania, 18 June 2010.
9. Mihail–Lucian Pascu, Viorel Nastasa, Adriana Smarandache, Andra Militaru, Ana Martins, Miguel Viveiros, Mihai Boni, **Ionut Relu Andrei**, Alexandru Pascu, Angela Staicu, Joseph Molnar and Leonard Amaral, *Laser induced modifications of phenothiazines*, The 2010 Scientific Communications Session of Physics Faculty, University of Bucharest, Bucharest, Romania, 18 June 2010.
10. **I.R. Andrei**, C.M. Ticos, M. Bulinski, M.L. Pascu, *Characterization of chaotic emission of a laser diode for selective and unselective optical feedback produced by external reflectors*, International Student Workshop on Laser Applications 2010 (ISWLA10), Bran, Romania, May 25-28, 2010.
11. V. Nastasa, Andra Militaru, T. Karapantsios, M. Ferrari, K. Samaras, E. Dafnopatidou, **I. R. Andrei**, L.Ligieri, V. Pradines, R. Miller, M. L. Pascu, *Generation of micro and nano-droplets containing immiscible solutions in view of optical studies*, International Student Workshop on Laser Applications 2010 (ISWLA10), Bran, Romania, May 25-28, 2010.
12. M.L.Pascu, **I.R.Andrei**, V.Pradines, V.Nastasa, R. Miller, *The generation of microdroplets as vectors to transport medicines to tissues* (invited), Laser Florence 2009 - Lasers in Medical Science Florence, Florence, Italy, vol.24, Supplement1, Nov. 6 -7, S14 (2009).
13. M.L. Pascu, Adriana Smarandache, **I.R. Andrei**, V. Nastasa, C. Ticos, *Microdroplets behaviour when exposed to laser radiation field* (invited), Invited presentation Micro- to Nano-Photonics II- ROMOPTO 2009, Sibiu, Romania, 31 August-3 September, 2009.
14. **I.R.Andrei**, M.Bulinski, C.M. Ticos, M.L. Pascu, *Chaotic properties of the laser beams emitted by semiconductor lasers*, The 2009 Scientific Communications Session of Physics Faculty, University of Bucharest, Bucharest, Romania, 5 June 2009.
15. M.L. Pascu, **I.R. Andrei**, C. Ticos, V. Nastasa, T. Beica, *Laser beams interactions with microdroplets* (invited), Joint Conference of the 7<sup>th</sup> MC & WG Meetings. COST ACTION P21 "The physics of droplets", Bucharest, Romania, May 4-6, 2009.
16. **I.R. Andrei**, M. Ferrari, Silvia Rao, A. Mahamoud, *Studies about producing droplets containing cytostatics solutions*, Conferinta Nationala de Fizica, Bucuresti, Romania, 10-13 Septembrie 2008.
17. **I.R.Andrei**, M.L. Pascu, M.Bulinski, *Poly-composite microstructures for light emission*, The 2008 Scientific Communications Session of Physics Faculty, University of Bucharest, Bucharest, Romania, 6 June 2008.

18. **I.R.Andrei**, M. Ferrari, Silvia Rao, L. Liggieri and M.L. Pascu, *Wetting properties of droplets containing drugs on superhydrophobic surfaces*, The 2008 Scientific Communications Session of Physics Faculty, University of Bucharest, Bucharest, Romania, 6 June 2008.
19. **I.R.Andrei**, M. Ferrari, Silvia Rao, L. Liggieri and M.L. Pascu, *Generation of droplets which contain cytostatics drugs*, Workshop: COST P21: The Physics of droplets, Fifth MC & Joint WG3 Meeting, Capri, Italy, May 15 - 16, 2008.
20. M.Bulinski, C.M. Ticos, **I.R.Andrei**, *M:N phase synchronization of LFF in an chaotic ECSL system*, The 2007 SPIE Conference "Noise and Fluctuations in Photonics, Quantum Optics, and Communications – Florence", Florence, Italy, 20-24 May 2007.
21. **I.R.Andrei**, M.L. Pascu, M.Bulinski, C.M. Ticos, *Chaos control by intensity current modulation in a chaotic ECSL system*, The 2007 Scientific Communications Session of Physics Faculty, University of Bucharest, Bucharest, Romania, 1 June 2007.
22. M.C. Valsangiacom, **I.R.Andrei**, G.A. Schinteie, M.Bulinski, *Optical and electronic changes induced by mixed valence metallic ions pairs in PVA doped polymers*, The 2007 Scientific Communications Session of Physics Faculty, University of Bucharest, Bucharest, Romania, 1 June 2007.
23. **I.R.Andrei**, M.Bulinski, C.M. Ticos, *A control method of the LFF chaotic behavior in an ECSL system*, The 2006 Scientific Communications Session of Physics Faculty, University of Bucharest, Bucharest, Romania, 26 May 2006.
24. M.C. Valsangiacom, **I.R.Andrei**, G.A. Schinteie, M.Bulinski, *Optical and electronic changes induced by mixed valence metallic ions pairs in PVA doped polymers*, The 2006 Scientific Communications Session of Physics Faculty, University of Bucharest, Bucharest, Romania, 26 May 2006.
25. M.Bulinski, C. Costea, **I.R.Andrei**, C.Ticos, *EOM control of the LFF chaotic behavior in an ECSL – m:n phase synchronization*, 3-rd Annual Meeting COST Action P10 Physics of Risk and Workshop on Complex System Science of ONCE-CS Action, Vilnius, Lithuania, 13-16 May 2006;
26. **I.R.Andrei**, M.Bulinski, *Methods and application of the chaos control*, The 2006 International Conference on Commerce – "New tools used in understanding business behavior: econophysics, complexity, competitive intelligence" session, 27-29 March 2006, Faculty of Commerce, ASE Bucharest;
27. **I.R.Andrei**, M.L.Pascu, M.Bulinski, *The numerical modeling of data coding transmission between two multi-mod laser diodes operating with external cavity*, The Scientific Communications Session of Physics Faculty, University of Bucharest, Bucharest, Romania, 27-28 May 2005.
28. M.Bulinski, C. Costea, M.L. Pascu, **I.R.Andrei**, *"Econophysics"* (invited), The Scientific Communications Session of Physics Faculty, University of Bucharest, Bucharest, Romania, 27-28 May 2005.
29. F. Ungureanu, L. Voicu, **I.R.Andrei**, *The modification of phenyl – pyridine compounds under UV irradiation: FTIR investigation*, The 2006 Scientific Communications Session of Physics Faculty, University of Bucharest, Bucharest, Romania, 26 May 2005.
30. **I.R.Andrei**, M.L.Pascu, M.Bulinski, *The numerical modeling of chaotic light emission of a multi-mod laser diode operating with external cavity*, The Scientific Communications Session of Physics Faculty, University of Bucharest, Bucharest, Romania, 2004.

#### List of contribution to conferences (posters)

1. V. Nastasa, M. Boni, **I.R. Andrei**, C.M. Ticos, M.L. Pascu, *Optical investigation of medicine solutions in micro-droplets form at interaction with laser irradiation*, SPIE Optics and Photonics conference, Conference on Physical Chemistry of Interfaces and Nanomaterials X, San Diego, August 21-23, 2011.
2. **I.R. Andrei**, C.M. Ticos, M. Bulinski, G.V. Popescu, M.L. Pascu, *Experimental analysis of chaotic coupling of two lasers with external optical feedback* (poster), International Student Workshop on Laser Applications 2011 (ISWLA11), Bran, Romania, May 31 – June 04, 2011,
3. **I.R.Andrei**, A. Smarandache, J.M.Pages, A. Mahamoud, M.L.Pascu, *The stability of the molecular structures of medicines delivered in microdroplets solutions* (poster), Laser Florence 2009, 6-7 nov. 2009, Florence, Italy, Lasers in Medical Science, vol.24, Supplement, S16 (2009).
4. **I.R.Andrei**, A. Smarandache, M.L.Pascu, *Water microdroplets behaviour at interaction with laser beams* (poster), International Workshop Bubble and Drop Interfaces, Thessaloniki, Greece, Sept 23-25, 2009.
5. **I.R. Andrei**, V. Nastasa, C.M. Ticos, M.L. Pascu, *Investigation of the fluorescent compounds solutions in microdroplets form at interaction with laser radiation*, (poster), International Workshop Bubble and Drop Interfaces, Thessaloniki, Greece, Sept 23-25, 2009.
6. **I. R. Andrei**, C. M. Ticos, M. Bulinski, M. L. Pascu, *Chaotic behaviour of semiconductor lasers emission when optically coupled with an external cavity* (poster), Micro- to Nano-Photonics II- ROMOPTO 2009, Sibiu, Romania, 31 August-3 September, 2009.
7. **I.R. Andrei**, M. Ferrari, L. Liggieri, M. Dicu, V. Nastasa, M. L. Pascu, *Characterization of microdroplets which contain solutions of medicines* (poster), Joint Conference of the 7<sup>th</sup> MC & WG Meetings. COST ACTION P21 „The physics of droplets”, Bucharest, Romania, May 4-6, 2009.
8. T. Beica, I. Zgura, L. Frunza, **I. R. Andrei**, M. Dicu, M. L. Pascu, *Surface tension of drug solutions* (poster), Joint Conference of the 7<sup>th</sup> MC & WG Meetings. COST ACTION P21 „The physics of droplets”, Bucharest, Romania, May 4-6, 2009.

9. M. Dicu, A. Staicu, A. Smarandache, **I. R. Andrei**, M. Ferrari, L. Liggieri, L. Frunza, M. L. Pascu, *Spectral studies of medicines to be delivered in microdroplets form* (poster), Joint Conference of the 7<sup>th</sup> MC & WG Meetings. COST ACTION P21 „The physics of droplets”, Bucharest, Romania, May 4-6, 2009.
10. M. Bulinski, Catalin M. Ticos, **I.R. Andrei**, M.L. Pascu, *The control of the chaotic dynamics of the external cavity – semiconductor laser system emission*, Conferinta Nationala de Fizica, Bucuresti, Romania, 10-13 Septembrie 2008.
11. C.M. Ticos, M.Bulinski, **I.R.Andrei**, M.L.Pascu, *Power dropout control by optical phase modulation in a chaotic semiconductor laser* (poster), International Conference “Micro-to Nano-Photonics” - ROMOPTO 2006, August 28-31, Sibiu, Romania.
12. M.Bulinski, M.L.Pascu, **I.R.Andrei**, *Coding chaos and communications with semiconductors lasers* (poster), 7<sup>th</sup> International Conference on Optics - ROMOPTO 2003 Conference, Constanta, Romania.

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