

PERSONAL INFORMATION

Olimpia Budrigă



 National Institute for Laser, Plasma and Radiation Physics

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 Skype ID: obudriga

Sex Female | Date of birth 21/08/1972 | Nationality Romanian

WORK EXPERIENCE

2019 – present

Scientific Researcher 2nd degree

National Institute for Laser, Plasma & Radiation Physics, Laser Department,
▪ Atomistilor Street, No. 409, PO Box MG-36, 077125, Magurele, Bucharest, Romania,
Business or sector Research & Development

2009-2019

Scientific Researcher 3rd degree; Scientific Researcher; Researcher Assistant

National Institute for Laser, Plasma & Radiation Physics, Laser Department, Atomistilor Street, No. 409, PO Box MG-36, 077125, Magurele, Bucharest, Romania, www.inflpr.ro
▪ Particle-in-Cell simulations of electron and ion acceleration by an ultra-high intensity laser pulse at the interaction with gaseous and solid targets.
▪ Theoretical research activities related to the quantum optics phenomena such as: electromagnetically induced transparency, high refractive index without absorption, lasing without population inversion, amplification without population inversion, subluminal and superluminal light propagation, negative refractive index.
▪ Theoretical studies on high-power laser interaction with matter such as two-photon ionization of hydrogen and hydrogenlike ions.
Business or sector Research & Development

2005-2010

Analyst programmer

I.G.P.R., Șoseaua Ștefan Cel Mare, Nr. 13-15, Bucharest, Romania
Programs in .NET Framework, C# language with databases in Microsoft SQL
Business or sector Fire, Police & Security

1999-2005

Mathematics teacher

Different primary and secondary schools
Teaching mathematics for scholars
Business or sector Education & Training

1998

Research Assistant

National Institute for Laser, Plasma & Radiation Physics, Laser Department, Atomistilor Street, No. 409, PO Box MG-36, 077125, Magurele, Bucharest, Romania, www.inflpr.ro
Theoretical studies on laser interaction with matter
Business or sector Research & Development

Budrigă O.

EDUCATION AND

TRAINING

- March 2008 **PhD in Physics** Level 8
University of Bucharest, Department of Physics
Theoretical study of laser assisted nonlinear Compton effect, multiphoton processes and Floquet theory. I have improved my computational abilities in Fortran language.
- June 1999 **B.Sc.** Level 6
University of Bucharest, Department of Mathematics
- June 1997 **M.Sc.** Level 7
University of Bucharest, Department of Physics
Atomic systems, quantum fields and plasma theory specialization. Computational abilities.
- June 1996 **B.Sc.** Level 6
University of Bucharest, Department of Physics
Advanced physics. Theoretical physics specialization. Computational abilities.

PERSONAL SKILLS

Mother tongue(s) Romanian

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

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 through my experience as member on different research teams, including scientists from abroad.

Organisational / managerial skills Leadership – I was responsible for a team of 4 people.

Budrigă O.

Digital competence

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

Levels: Basic user - Independent user - Proficient user

[Digital competences - Self-assessment grid](#)

Replace with name of ICT-certificate(s)

- Very good command of office suite (word processor, spread sheet, presentation software).
- Very good command of Fortran and Mathematica gained as student and researcher.
- Very good command of C++, .Net, SQL, C# gained as programmer.
- Very good command of Particle-in-Cell codes on supercomputers, grids and servers

Other skills

- Painting learned at school.
- Dancing

Driving licence B

ADDITIONAL INFORMATION

Publications	Annex 1
Projects	Annex 2
Summer Schools	Annex 3
Conferences	Annex 4
Memberships	European Physical Society, Romanian Physical Society
Citations number	86
Hirsch Index	8
Working stages	Particle-in-Cell simulations with Prof. Emmanuel d'Humieres, March-April 2015, November 2016, November 2017, September 2019, May 2022 at <i>Universite de Bordeaux - CNRS - CEA, CELIA</i> , 33405 Talence Cedex, France.

ANNEXES

- Annex 1. List of publications.
- Annex 2. List of projects.
- Annex 3. List of summer schools.
- Annex 4. List of conferences.

Budrigă O

Annex 1. List of publications.

1. **Reaching extreme laser intensities using multi-petawatt lasers interacting with micro-cones**, O. Budrigă, E. d'Humières, A. Budrigă and K. A. Tanaka, Plasma Physics and Controlled Fusion 67, 035027 (2025).
2. **One order intensification of a focused-laser through a micro-cone in the Petawatt Regime**, O. Budrigă, L. E. Ionel, D. Tatomirescu and K. A. Tanaka, AIP Conference Proceedings 2843, 020003 (2023).
3. **Target Characteristics Used in Laser-Plasma Acceleration of Protons Based on the TNSA Mechanism**, A. Măgureanu, L. Dincă, C. Jalbă, R. F. Andrei, I. Burducea, D. G. Ghiță, V. Nastasa, M. Gugiu, T. Asavei, **O. Budrigă**, D. Ticoș, V. Crăciun, B. Diaconescu and C. M. Ticoș, Frontiers in Physics 10, 727718 (2022).
4. **MATHEMATICAL DESCRIPTION OF THE DENSITY PROFILE FOR THE INTERACTION OF AN ULTRA-HIGH INTENSITY LASER PULSE WITH A NANOSTRUCTURED FLAT-TOP CONE**, M. Martiș and **O. Budrigă**, U.P.B. Sci. Bull., Series A 83, 189 (2021).
5. **Modeling the electron acceleration in relativistic channels for space irradiation applications**, **O. Budrigă** and C. M. Ticoș, Plasma Physics and Controlled Fusion 62, 124001(2020).
6. **Enhancement of laser-focused intensity greater than 10 times through a re-entrant cone in the petawatt regime**, **O. Budrigă**, L. E. Ionel, D. Tatomirescu and K. A. Tanaka, Optics Letters 45, 3454 (2020).
7. **Modeling the interaction of an ultra-high intensity laser pulse with an ultra-thin nanostructured foil target**, M. Martiș, **O. Budrigă**, E. d'Humieres, L. E. Ionel and M. Carabaș, Plasma Physics and Controlled Fusion 62, 095014 (2020).
8. **Modeling the interaction of an ultra-high intensity laser pulse with nano-layered flat-top cone targets for ion acceleration**, **O. Budrigă**, E. d'Humieres, L. E. Ionel, M. Martiș and M. Carabaș, Plasma Physics and Controlled Fusion 61, 085007 (2019).
9. **Modeling the ultra-high intensity laser pulse – cone target interaction for ion acceleration at CETAL facility**, **O. Budrigă**, E. d'Humieres, Laser and Particle Beams 35, 458 (2017).
10. **SIMULATIONS FOR PROTONS AND ELECTRONS ACCELERATION WITH THE 1 PW LASER PULSE FROM CETAL FACILITY**, **O. Budrigă**, E. d'Humieres, and C. M. Ticoș, Rom. Rep. Phys. 67, 1271 (2015).
11. **THE CHOICE OF A V-TYPE SYSTEM WITH THE PROBE FIELD IN THE SUBLUMINAL OR SUPERLUMINAL REGIME**, **O. Budrigă**, Rom. Rep. Phys. 67, 1108-1116 (2015).
12. **Subluminal and superluminal light propagation in the V-type system of the second kind**, **O. Budrigă**, Optical and Quantum Electronics 47, 3815-3824 (2015).
13. **Amplification without inversion and high refractive index in heterogeneous molecules**, **O. Budrigă**, Opt. Comm. 328, 77-86 (2014).
14. **Above-threshold ionization of hydrogen and hydrogen-like ions by X-ray pulses**, H. Bachau, **O. Budrigă**, M. Dondera, V. Florescu, Cent. Eur. J. Phys. 11, 1091 (2013).
15. **High refractive index without absorption via spontaneously generated coherence and incoherent pumping**, **O. Budrigă**, Phys. Scr. T153, 014007 (2013).
16. **Two-photon ionization of hydrogen and hydrogenlike ions: Retardation effects on differential and total generalized cross sections**, V. Florescu, **O. Budrigă**, and H. Bachau, Phys. Rev. A 86, Article number 033413 (2012).
17. **Two-photon ionization of ground state hydrogen from the photoelectric threshold up to 40 keV**, V. Florescu, **O. Budrigă**, and H. Bachau, Journal of Physics Conference Series 388, 022054 (2012).
18. **Incoherent Pumping and Phase Control of the High Index of Refraction without Absorption**, **O. Budrigă**, European Physical Journal D 66, 137 (2012).
19. **Two-photon above-threshold ionization of hydrogen over the photon energy range from 15 eV to 50 keV**, V. Florescu, **O. Budrigă**, and H. Bachau, Phys. Rev. A 84, 033425 (2011).
20. **Incoherent pump influence on the transient gain in a V-type system with spontaneously generated coherence**, **O. Budrigă**, European Physical Journal D 65, 581-585 (2011).
21. **Laser polarization effects on K-shell Compton scattering**, **O. Budrigă** and V. Florescu, European Physical Journal D 41, 205-210 (2007).

Budrigă O.

22. **Laser modified processes: bremsstrahlung and inelastic photon-atom scattering**, O. Budrigă, M. Dondera, V. Florescu, NIMB 261, 180-183 (2007).

Annex 2. List of projects.

Project Manager of the national project PN III 5/5.1/ELI-RO, No. ELI 16/2017 **SIMULATE**

Team member in the following national projects:

- PN III 5/5.1/ELI-RO, No. 04-ELI/2016 **QLASNUC**
- PN III 5/5.1/ELI-RO, No. 25-ELI/2016 **TARGET**
- ELI-IFA-CERN-E06 (**LAPLACE**) 2015-2016
- ELI-NP project 09/11.02.2015
- RNP 1/2012
- PNCDI-IDEI 2009-2011, "Plasma Opacity in Solar Prominences: Atomic and Molecular Models"
- CEEEx06-11-39/2006-2008, "Laser-atom, laser-plasma interactions for inertial confinement fusion research"

Annex 3. List of summer schools.

1. ELISS, 27 August – 1 September 2017, Cheile Gradistei, Romania.
2. ELISS, 21-26 August 2016, Prague, Czech Republic.
3. International School on Ultra-Intense Lasers, 4-9 October 2015, Moscow, Russia.
4. International School of Quantum Electronics, 46th Course *Matter in Super-Intense Laser Fields*, 10 – 17 July 2009, Erice, Italy.
5. International School of Quantum Electronics, 43rd Course *Atoms and Plasmas in Super-Intense Laser Fields*, 27 June - 5 July 2006, Erice, Italy.

Annex 4. List of conferences.

- **Invited talk** at 7th International Conference on Matter and Radiation at Extremes (ICMRE 2024), May 13 – 17, 2024, Hangzhou, China: **Olimpia Budrigă**, Emmanuel d'Humières, Aurora Budrigă, Laura Emilia Ionel and Kazuo Tanaka, *Secondary Sources Optimized by Extreme Intensity Lasers at the Interaction with Micro-Cones*.
- **Invited talk** at 6th International Conference on Matter and Radiation at Extremes (ICMRE 2023), June 5 – 9, 2023, Zhuhai, Guangdong, China: **Olimpia Budrigă**, Emmanuel d'Humieres, Aurora Budrigă and Kazuo Tanaka, *Modeling the interaction of a 10^{23} W/cm² laser pulse with a micro-cone target*.
- **Invited talk** at CLEO, 9-14 May 2021, On-line, O. Budrigă, L. E. Ionel, D. Tatomirescu, **K. A. Tanaka**, *Intensification of a focused-laser more than one order of magnitude through a micro-cone in the petawatt regime*.
- **Invited talk** at 4th International Conference on Matter and Radiation at Extremes (ICMRE 2019), 29 May-2 June 2019, Hefei, China: **Olimpia Budrigă**, Emmanuel d'Humieres, Laura Ionel, Maria Martiş and Mihai Carabaş, *Modeling the interaction of an ultra-high intensity laser pulse with nanostructured targets*.
- **Oral presentation** at ICLPR-ST, June 7-10 2022, Bucharest, Romania, **Olimpia Budrigă**, Emmanuel d'Humieres, Kazuo A. Tanaka, *Enhancement of laser pulse intensity from 10^{23} W/cm² to 10^{24} W/cm² by using a plastic micro-cone target*.
- **Oral presentation** at TIM 20-21 Physics Conference, 11-13 November 2021, On-line, **O. Budrigă**, L. E. Ionel, D. Tatomirescu, K. A. Tanaka, *ONE ORDER INTENSIFICATION OF A FOCUSED-LASER THROUGH A MICRO-CONE IN THE PETAWATT REGIME*.
- **Oral presentation** at 1st ELI-NP User Workshop, 7-11 October 2019, Magurele, Romania: O. Budrigă, L. E. Ionel, D. Tatomirescu, K. A. Tanaka, *One order of magnitude enhancement of laser intensity with a single reentrant micro-cone target in the petawatt regime*.
- **Oral presentation** at 46th Plasma Physics Conference EPS 2019, 8-12 July 2019, Milan, Italy: O. Budrigă, L. E. Ionel, D. Tatomirescu, K. A. Tanaka, *One order of magnitude enhancement of laser intensity with a single reentrant micro-cone target in the petawatt regime*.
- **Invited talk** at Workshop on Complex Systems of Charged Particles and Their Interaction with Electromagnetic Radiation, 25-27 March 2019, Moscow, Russia: **Olimpia Budrigă**, Emmanuel d'Humieres, Laura Ionel, Maria Martiş and Mihai Carabaş, *Modeling the interaction of an ultra-high intensity laser pulse with nanostructured targets*.
- **Oral presentation** at 18th International Conference on Laser Optics (ICLO 2018), 3-9 June 2018, St. Petersburg, Russia: **O. Budrigă**, E. d'Humieres, L. E. Ionel, M. Budrigă, M. Carabaş, *Laser-ion acceleration at ELI-NP*.
- **Poster** at Nuclear Photonics 2018, 24-29 June 2018, Braşov, Romania: **O. Budrigă**, E. d'Humieres, L. E. Ionel, M. Budrigă, M. Carabaş, *Laser-ion acceleration at ELI-NP*.
- **Invited talk** at Workshop on Complex Systems of Charged Particles and Their Interaction with Electromagnetic Radiation, 13-15 April 2016, Moscow, Russia: **O. Budrigă**, C. M. Ticoş, *Electron Acceleration for Space Applications at the CETAL Facility*.
- **Poster** at ELI-NP Summer School, September 21-25 2015, Magurele, Romania: C. M. Ticoş, G. Giubega, T. Georgescu, M. Ganciu, C. Diplăşu, B. Mihalcea, M. Şerbănescu, I. Dăncuş, L. Neagu, A. Marcu, I. Nicolae, R. Ungureanu, G. Cojocaru, **O. Budrigă**, L. Mitu, A. Groza, D. Ticoş, I. Ioniţă, M. Bulinski, *Electron acceleration in gas jet at CETAL Petawatt Laser Facility*.
- **Poster** at 42nd European Physical Society Conference on Plasma Physics, June 22-26 2015, Lisbon, Portugal: C. M. Ticoş, G. Giubega, T. Georgescu, M. Ganciu, C. Diplăşu, B. Mihalcea, M. Şerbănescu, I. Dăncuş, L. Neagu, A. Marcu, I. Nicolae, R. Ungureanu, G. Cojocaru, **O. Budrigă**, L. Mitu, A. Groza, D. Ticoş, I. Ioniţă, M. Bulinski, *Electron acceleration in gas jet at CETAL Petawatt Laser Facility*.

Budrigă O

- **Poster** at International School on Ultra-Intense Lasers, October 4-9 2015, Moscow, Russia: **O. Budrigă**, E. d'Humieres, C. M. Ticoş, *SIMULATIONS FOR PROTONS AND ELECTRONS ACCELERATION WITH THE 1 PW LASER PULSE FROM CETAL FACILITY*.
- **Oral presentation** at International Student Workshop on Laser Applications 2011, May 31-June 4 2011, Bran, Romania: **O. Budriga**, *Transient analysis of a V system with incoherent pumping and spontaneously generated coherence*.
- **Oral presentation** at 4th annual meeting of the COST Action CUSPFEL in Cluj, Romania, 21-23 March 2012: H. Bachau, **O. Budriga**, M. Dondera, V. Florescu, *One and two-photon ionization of hydrogen by x-ray pulses*.
- **Poster** at XXVII International Conference on Photonic, Electronic and Atomic Collisions, 27 July-2 August 2011, Belfast, Northern Ireland, UK: V. Florescu, **O. Budriga**, H. Bachau, *Two-photon ionization of ground state hydrogen from the photoelectric threshold up to 40 keV*.

Budrigă O