Bogdan-Ştefăniţă Călin

Nationality: Romanian

Date of birth: 12/07/1991

Gender: Male

Email address: bogdan.calin@upb.ro

WORK EXPERIENCE

Scientific Research Assistant

National Institute for Laser, Plasma and Radiation Physics [03/01/2016 – Current]

Address: Str. Atomiştilor, nr. 409, 077125 Bucharest - Măgurele (Romania) - www.inflpr.ro

-High precision ultrafast laser micro- and nanoprocessing

-Integrated and micro-optics

-FDTD simulations (pyMeep and OptiFDTD)

-Digital holography and diffractive optical elements

-Laser-matter interaction

-Opto-mechanical setup development

-Software development

Junior Researcher - Work Placement

Metal Vapor Laser Laboratory, Georgi Nadjakov Institute of Solid State Physics - Bulgarian Academy [22/08/2016 – 21/09/2016]

Address: Sofia (Bulgaria)

Scientific tasks:

-experimental activity for obtaining laser induced periodical surface structures using femtosecond pulses

-experience sharing with partners from ISSP-BAS that show interest in the area of laser direct writing using multiphoton processes

-oral presentation of experimental results at the INERA Work Package 3

-participation at "Open Days" event of ISSP-BAS

Physicist

Horia Hulubei National Institute for Physics and Nuclear Engineering [16/06/2015 – 18/12/2015]

Address: 30, Reactorului Street, Bucharest - Măgurele - www.nipne.ro

EDUCATION AND TRAINING

PhD - Summa cum Laude

Doctoral School of Applied Sciences, University "Politehnica" of Bucharest [2016 – 2019]

Address: Bucharest (Romania)

Thesis:

"Ultrafast laser fabrication of complex three-dimensional microstructures based on multiphoton interactions"

MSc. - Lasers and Particle Accelerators Engineering and Applications

University "Politehnica" of Bucharest [01/10/2014 – 30/06/2016]

Address: Bucharest (Romania)

Thesis: "Design, fabrication and characterization of diffractive optical elements"

BSc. Engineer, Physical Engineering

Faculty of Applied Sciences, University "Politehnica" of Bucharest [04/10/2010 – 09/07/2014]

Address: Bucharest (Romania)
National classification : Nivelul 1 CEC

Thesis: "Design of complex photonic structures with polarizing properties"

Baccalaureate diploma

"Nichita Stănescu" National College [18/09/2006 – 29/05/2010]

Address: Ploieşti (Romania)

-class profile: mathematics-informatics, English-bilingual

LANGUAGE SKILLS

Mother tongue(s):

Romanian

English

LISTENING: C2 **READING:** C2 **WRITING:** C2

SPOKEN PRODUCTION: C1

SPOKEN INTERACTION: C2

French

LISTENING: B1 **READING:** B1 **WRITING:** A1

SPOKEN PRODUCTION: A2 **SPOKEN INTERACTION:** A2

List of relevant publications

ResearcherID: I-9916-2016

ORCID: 0000-0003-0639-0380

Main author:

- *"Laser fabrication of diffractive optical elements based on detour-phase computer generated holograms for two-dimensional Airy beams"*, **Bogdan Ştefăniţă CĂLIN***, L. PREDA, M. ZAMFIRESCU, F. JIPA. Applied Optics, vol. 57, no. 8, **2018**

- "Design of a novel integrated polarization beam splitter", **B. CĂLIN**, M. ZAMFIRESCU, R. IONICIOIU, N. PUŞCAŞ*, U. P. B. Sci. Bull, seria A, vol 80, no. 1, **2018**

- *"Near-IR broadband polarizer design based on photonic crystals"*, **B. CĂLIN**, L. PREDA*, U. P. B. Sci. Bull, seria A, vol. 77, nr. 3, **2015**

Co-author:

- "Magnetically-driven 2D cells organization on superparamagnetic micromagnets fabricated by laser direct writing", I.A. Paun, C.C. Mustaciosu, M. Mihailescu, B.S. Calin, A.M. Sandu, Scientific Reports, 10(1), 164128, **20 20**

- "Collagen/chitosan functionalization of complex 3D structures fabricated by laser direct writing via two-photon polymerization for enhanced osteogenesis", I.A. Paun, C.C. Mustaciosu, R.C. Popescu, B.S. Calin, M. Mihailescu, Int. J. Mol. Sci., 21(17), pp. 1-18, 2020

- "Osteogenic cells differentiation on topological surfaces under ultrasound stimulation", I. Paun, **B. Calin**, C. Mustaciosu, M. Mihailescu, C. Popovici, C. Luculescu, J. Mat. Sci., vol 54, pp. 11213 - 11230, **2019**

- "3D Superparamagnetic Scaffolds for Bone Mineralization under Static Magnetic Field Stimulation", I. Paun, **B. Calin**, C. Mustaciosu, M. Mihailescu, A. Moldovan, O. Crisan, A. Leca, C. Luculescu, Materials, vol. 12, no. 17, **20 19**

- "High Repetition Rate UV versus VIS Picosecond Laser Fabrication of 3D Microfluidic Channels Embedded in Photosensitive Glass", F. Jipa, S. Iosub, **B. Calin**, E. Axente, F. Sima*, K. Sugioka, Nanomaterials, vol. 8, no. 8, **2 018**

- "3D Biomimetic Magnetic Structures for Static Magnetic Field Stimulation of Osteogenesis", I. Paun, R. Popescu, **B. Călin**, C. Mustaciosu, M. Dinescu, C. Luculescu, Int. J. Mol. Sci., vol 19, no. 2, **2018**

- *"Laser-direct writing by two-photon polymerization of 3D honeycomb-like structures for bone regeneration"*, I. Paun, R. Popescu, C. Mustaciosu, M. Zamfirescu, **B. Calin,** M. Mihailescu, M. Dinescu, A. Popescu, D. Chioibasu, M. Sopronyi, C. Luculescu. Biofabrication, vol. 10, no. 2, **2018**

- *"Electrically responsive microstructured polypyrrole-polyurethane composites for stimulated osteogenesis"*, Luculescu, C.R., Acasandrei, A.M., Mustaciosu, C.C., Zamfirescu, M., Dinescu, M., **Calin, B.S.**, Popescu, A., Chioibasu, D., Cristian, D., Paun, I.A., Applied Surface Science, vol. 433, no. 1, pp. 166-176, **2018**

PROJECTS

Projects

Member in the following projects:

- Horizon2020 no. 862016: BIOCOMBS4NANOFIBERS / Antiadhesive Bionic Combs for Handling of Nanofibers

- 79PCCDI/2018: QTECH / Dezvoltarea informatiei cuantice si a tehnologiei cuantice in Romania

- 71PCCDI/2018: SENSIS / Senzori si sisteme integrate electronice si fotonice pentru securitatea persoanelor si a infrastructurilor

-DropTES/2018: Interaction of Laser Exposed Medicine Droplets with Target Surfaces under Microgravity Conditions

- PCCF18/2018: HIGHkDEVICE / High-k nanoparticle Multilayer Dielectrics for Nanoelectronics and Energy Storage Applications

- ELI-25/2016: Target / Laser Targets for Ultraintense laser experiments

- PED197/2017: EMABON / Functional electromagnetic active scaffolds for bone regeneration

- PED2018/2017: THECODE / Elemente holografice fabricate prin polimerizare cu doi fotoni pentru model demonstrativ de comunicatii optice

ORGANISATIONAL SKILLS

Organisational skills

-president of OSA Student Chapter (Institute of Atomic Physics), 2018;

-member of the organizing committee of the Joint ISCP & INDLAS Conference 2018 (granted by The Optical Society (OSA), The International Society for Optics and Photonics (SPIE), the Young Minds Project of the European Physical Society (EPS), and the National Institute for Laser, Plasma and Radiation Physics (INFLPR))

-member of the organizing committee of IONS Balvanyos 2017 Conference (granted by The Optical Society (OSA), The International Society for Optics and Photonics (SPIE) and the Young Minds Project of the European Physical Society (EPS))

-member in the organizing committee of the Scientific Communications Session for Doctoral Students 2017, granted by the School of Applied Sciences, University "Politehnica" of Bucharest

-member of the Optical Society of America

-member and Secretary of the SPIE Student Chapter - Institute for Atomic Physics

-member in the organizing committee of the Scientific Communications Session for Students - Faculty of Applied Sciences, 2014

-member in the organizing and scientific committee of the Scientific Communications Session for Students - Faculty of Applied Sciences, 2013

COMMUNICATION AND INTERPERSONAL SKILLS

Communication and interpersonal skills

-good organization and speaking skills as a result of experience gained from participation in various internships, scientific conferences and workshops

Presentations

Oral presentations:

As speaker:

- **Bogdan Calin**, Marian Zamfirescu, Irina Paun, Catalin Luculescu, "Ultrafast laser fabrication of ion microtraps via multiphoton processing technologies", MD-GAS (COST Action CA18212), 2019, Caen, France;

-**Bogdan Călin**, Marian Zamfirescu, Florin Jipa, Marius Dumitru, "Additive manufacturing of microstructures for laser-driven particle acceleration", ISCP-INDLAS 2018, Alba-Iulia, Romania;

-**Bogdan Călin**, Liliana Preda, Marian Zamfirescu, "Laser Fabrication of Diffractive Optical Elements for Two-Dimensional Airy Beams", Photonica 2017, Belgrade, Serbia;

-**Bogdan Călin**, Liliana Preda, Marian Zamfirescu, "Laser Fabrication of Diffractive Optical Elements for Two-Dimensional Airy Beams", International OSA Network of Students - IONS Balvanyos 2017, Balvanyos, Romania;

-**Bogdan Călin**, Liliana Preda, Marian Zamfirescu, "Elemente optice difractive fabricate prin tehnici de scriere directa cu laserul", Workshop CETAL, July 2017, Bucharest

-**Bogdan Călin**, C. Albu, L. Ionel, E. Iordanova, G. Yankov, "Periodical Surface Nanostructures Induced by Femtosecond Laser", Postmobility Experience Sharing, Work Package 3 Workshop, INERA project, Georgi Nadjakov Institute of Solid State Physics - Bulgarian Academy of Sciences, Sofia

As co-author:

- A. Simon, **B. S. Călin**, D. C. Trancă, M. Boni, I. R. Andrei, S. Simion, M. Bojan, I. S. Stroescu, M. I. Pascu, "Interaction of laser exposed phenotiazine droplets with target surfaces approached in view of microgravity applications", ISCP-INDLAS 2018, Alba-Iulia, Romania,

-Florin Jipa, Stefana Iosub, **Bogdan Călin**, Emanuel Axente, Felix Sima, Koji Sugioka, "3D embedded structures fabrication in photosensitive glasses by high-repetition-rate picosecond laser", European Materials Research Society - 2018 Spring Meeting, 19th July, Strasbourg, France;

-Marian Zamfirescu, **Bogdan Călin,** Florin Jipa, Irina Păun, "Applications of 3D laser lithography", Photonica 2017, Belgrade, Serbia; **invited lecture;

-Marian Zamfirescu, **B. Călin**, A. Popescu, G. Chioibaşu, C. Dobrea, I. Tiseanu, I. Păun, "laser Processing and Characterizations of Complex Geometries", International OSA Network of Students, IONS Balvanyos 2017, **invited lecture;

Posters:

-**Bogdan Călin**, Marian Zamfirescu, Irina Păun, Catalin Luculescu, Florin Jipa, Stefana Iosub, Emanuel Axente, Felix Sima, "Multiphoton processing technologies applied in laser-based 3D printing", OSA Frontiers in Optics + Laser Science 2018, Washington DC, USA;

-N.E. Stankova, P.A. Atanasov, E. Iordanova, G. Yankov, E. Radeva, M. Zamfirescu, **B. Călin**, C.R. Luculescu, M.D. Dumitru, Dr. Tatchev, K.N. Kolev, E.I. Valova, St. A. Armyanov, D. Karashanova, K. Grochowska, G. Sliwinski, N. Fukata, D. Hirsch, B. Rauschenbach, "Laser assisted modification of biocompatible polymers relevant to neural interfacing technologies", International Conference on Materials Science and Graphene Technology 2018, Dubai, United Arab Emirates;

-**Bogdan Călin**, Liliana Preda, Marian Zamfirescu, Florin Jipa, "Laser Fabrication of Diffractive Optical Elements for Two-Dimensional Airy Beams", Photonica 2017, Belgrade, Serbia;

- Marian Zamfirescu, **Bogdan Călin**, Săndel Simion, Radu Ionicioiu, "CETAL: a research infrastructure for photonic-based technologies", International OSA Network of Students - IONS Balvanyos 2017, Balvanyos, Romania;

- Marian Zamfirescu, **Bogdan Călin**, Săndel Simion, Radu Ionicioiu, "CETAL: a research infrastructure for photonic-based technologies", COST Action CA15220, Quantum Technologies in Space, Valetta, Malta, 26 - 31 Martie 2017;

- **B. Călin**, C. Albu, L. Ionel, E. Iordanova, G. Yankov, A. Marcu, "Periodical Surface Nanostructures Induced by Femtosecond Laser", Applied Nanotechnology and Nanoscience International Conference, Barcelona, 9-11 Noiembrie 2016;

- A. Marcu, **B. Călin,** "Surface Diffusion control in PLD/VLS growing", Priorities of Chemistry for a Sustainable Environment, XII-th Edition National Institute for Research and Development in Chemistry and Petrochemistry, 2016;

- **B. Călin**, C. Albu, L. Ionel, E. Iordanova, G. Yankov, A. Marcu, "Periodical Surface Nanostructures Induced by Femtosecond Laser", Priorities of Chemistry for a Sustainable Environment, XII-th Edition National Institute for Research and Development in Chemistry and Petrochemistry, 2016;

Lista completă de lucrări
Bogdan-Ştefăniță CĂLIN

- "Magnetically-driven 2D cells organization on superparamagnetic micromagnets fabricated by laser direct writing", I.A. Paun, C.C. Mustaciosu, M. Mihailescu, **B. Calin**, A.M. Sandu, Scientific Reports, 10(1), 16418, 12 pg, **2020 WOS:000577151500013**
- "Collagen/chitosan functionalization of complex 3D structures fabricated by laser direct writing via two-photon polymerization for enhanced osteogenesis", I.A. Paun, C.C. Mustaciosu, R.C. Popescu, **B.S. Calin**, M. Mihailescu, Int. J. Mol. Sci., 21(17), pp 1-18, 6426, 18 pg, **2020 WOS:000570323200001**
- "Optimization of laser butt welding of stainless steel 316l using response surface methodology", Chioibaşu, D., **Călin, B**., Popescu, A., Puşcaş, N., Klobčar, D., UPB Scientific Bulletin, Series A: Applied Mathematics and Physics, **2020**, 82(2), pp. 221–230, 10pg, **WOS:000538163300021**
- "Investigation of dissimilar laser welding of stainless steel 316l to aluminium A1050 in lap joints configuration", Chioibaşu, D., **Călin, B.**, Popescu, A., Puşcaş, N., Klobčar, D., UPB Scientific Bulletin, Series A: Applied Mathematics and Physics, **2020**, 82(1), pp. 271–278, 8 pg, **WOS:000517837900026**
- "3D Superparamagnetic Scaffolds for Bone Mineralization under Static Magnetic Field Stimulation", Irina Păun, **Bogdan Călin**, Cosmin Mustăciosu, Mona Mihăilescu, Antoniu Moldovan, Ovidiu Crişan, Aurel Leca, Cătălin Luculescu, Materials, vol. 12, no. 17, 20 pg, **2019 WOS:000488880300187**
- "Osteogenic cells differentiation on topological surfaces under ultrasound stimulation", Irina Păun, **Bogdan Călin**, Cosmin Mustăciosu, Mona Mihăilescu, Cezar Popovici, Cătălin Luculescu, Journal of Materials Sciences, vol 54, no. 16, pp 11213 - 11230, 18 pg, **2019 WOS:000469467500020**
- "Adaptive phase steps for diffractive phase elements using two-photon polymerization", E. I. Scarlat, M. Mihăilescu, N. Mihale, I. Păun, **B. Călin**, C. Luculescu, D. Trancă, Journal of Optoelectronics and Advanced Materials, vol. 21, no. 3-4, pp 153 - 162, 10 pg, **2019 WOS:000472534300001**
- "Laser fabrication of diffractive optical elements based on detour-phase computer generated holograms for two-dimensional Airy beams", **Bogdan Ştefăniță CĂLIN***, Liliana PREDA, Marian ZAMFIRESCU, Florin JIPA. Applied Optics, vol. 57, no. 8, 6 pg, **2018 WOS:000425508300012**
- "High Repetition Rate UV versus VIS Picosecond Laser Fabrication of 3D Microfluidic Channels Embedded in Photosensitive Glass", Florin Jipa, Stefana Iosub, **Bogdan Calin**, Emanuel Axente, Felix Sima*, Koji Sugioka, Nanomaterials, vol. 8, no. 8, 12 pg, **2018 WOS:000443257500022**
- "3D Biomimetic Magnetic Structures for Static Magnetic Field Stimulation of Osteogenesis", Irina Alexandra Paun, Roxana Cristina Popescu, **Bogdan Ştefăniță Călin**, Cosmin Catalin Mustaciosu, Maria Dinescu, Catalin Romeo Luculescu, Int. J. Mol. Sci., vol 19, no. 2, 18 pg, **2018 WOS:000427527400179**
- "Laser-direct writing by two-photon polymerization of 3D honeycomb-like structures for bone regeneration", Paun, Irina Alexandra; Popescu, Roxana Cristina; Mustaciosu, Cosmin Catalin; Zamfirescu, Marian; **Calin, Bogdan Stefanita**; Mihailescu, Mona; Dinescu, Maria; Popescu, Andrei; Chioibasu, Diana Georgiana; Sopronyi, Mihai; Luculescu, Catalin. Biofabrication, vol. 10, no. 2, 17 pg, **2018 WOS:000424236400002**
- "Electrically responsive microstructured polypyrrole-polyurethane composites for stimulated osteogenesis", Luculescu, C.R., Acasandrei, A.M., Mustaciosu, C.C., Zamfirescu, M.,

Dinescu, M., **Calin, B.S.**, Popescu, A., Chioibasu, D., Cristian, D., Paun, I.A., Applied Surface Science, vol. 433, no. 1, pp. 166-176, 11 pg, **2018 WOS:000418883800022**

- "Design of a novel integrated polarization beam splitter", **Bogdan Ştefăniță CĂLIN**, Marian ZAMFIRESCU, Radu IONICIOIU, Niculae PUŞCAŞ*, U. P. B. Sci. Bull, seria A, vol 80, no. 1, 14 pg, **2018 WOS:000427816900022**
- "Near-IR broadband polarizer design based on photonic crystals", **Bogdan Ştefăniță CĂLIN**, Liliana PREDA*, U. P. B. Sci. Bull, seria A, vol. 77, nr. 3, 10 pg, **2015 WOS:000359327500024**