

## PERSONAL INFORMATION

## Cătălin Mihai TICOȘ



Extreme Light Infrastructure - Nuclear Physics (ELI-NP)  
 IFIN-HH, Str. Reactorului Nr 30, 077125, Măgurele-Ilfov  
 National Institute for Laser, Plasma and Radiation Physics (INFLPR),  
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## WORK EXPERIENCE

2021-present	<b>Senior scientist (CS I)</b> Extreme Light Infrastructure-Nuclear Physics (ELI-NP), Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering (IFIN-HH), Reactorului Str., No. 30, 077125, Măgurele-Ilfov, Romania <ul style="list-style-type: none"> <li>Management of research projects</li> <li>Leadership in the design and direction of research experiments</li> </ul>
2020-2021	<b>Head of Department Laser Driven Experiments (LDED), CS I</b> Extreme Light Infrastructure-Nuclear Physics (ELI-NP), Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering (IFIN-HH), Reactorului Str., No. 30, 077125, Măgurele-Ilfov, Romania <ul style="list-style-type: none"> <li>Implementation of the ELI-NP project</li> </ul>
2020-present	<b>PhD Supervisor (Habilitation)</b> Doctoral School "Engineering and Applications of Lasers and Accelerators" (S.D.I.A.L.A.) – National University for Science and Technology Politehnica University of Bucharest <ul style="list-style-type: none"> <li>Member in the ARN-Phot (Nuclear Photonics) project funded by IFA implemented at ELI-NP in collaboration with Technical University Darmstadt, Germany on project IRTG</li> <li>Supervisor of 5 PhD students (1 in collaboration with TU Darmstadt)</li> </ul>
2011-2019	<b>Head of the Electron Accelerators Laboratory 230</b> National Institute for Laser, Plasma, and Radiation Physics (INFLPR), Atomistilor Str. No. 409, PO Box MG 36, 077125, Romania Măgurele-Ilfov, Romania <ul style="list-style-type: none"> <li>Laboratory management and operations oversight</li> <li>Leadership of a team of six early-career researchers (doctoral candidates, postdoctoral fellows, and a CSIII researcher) working on electron beam and plasma physics projects</li> <li>Member of the INFLPR Scientific Council</li> <li>Member of the Steering Committee of INFLPR</li> </ul>
2009-present 2007-2009	<b>Senior scientist (CS I) Researcher</b> National Institute for Laser, Plasma, and Radiation Physics (INFLPR), Atomistilor Str. No. 409, PO Box MG 36, 077125, Romania Măgurele-Ilfov, Romania <ul style="list-style-type: none"> <li>Project director overseeing research in plasma physics, lasers and electron beams</li> </ul>
2004-2007	<b>Postdoctoral researcher</b> Los Alamos National Laboratory, Plasma Physics Group P-24, Los Alamos 87545, New Mexico, USA <ul style="list-style-type: none"> <li>Plasma physics research</li> </ul>

2002-2004	<b>Postdoctoral researcher</b>
	University of Oxford, Department of Engineering Science, Oxford OX1 3PJ, UK
	▪ Plasma physics research
1997-2002	<b>Research and teaching assistant, PhD student</b>
	University of Miami, Department of Physics, Nonlinear Dynamics Lab. & Department of Electrical and Computer Engineering, Optics Lab., Coral-Gables, FL, USA
	▪ Nonlinear plasma dynamics and control of chaos in plasma
1995-1997	<b>Research Assistant</b>
	National Institute for Laser, Plasma, and Radiation Physics (INFLPR), Atomistilor Str. No. 409, PO Box MG 36, 077125, Măgurele-Ilfov, Romania
	▪ Laser physics research

## EDUCATION AND TRAINING

1997-2002	<b>PhD</b>
	University of Miami, Coral Gables, FL, USA
	▪ Physics
1995-1996	<b>Master of Science</b>
	University of Bucharest, Faculty of Physics
	▪ Opto-technics and technologies with lasers and plasma
1990-1995	<b>Bachelor of Science (Diplomă de Licență)</b>
	University of Bucharest, Faculty of Physics
	▪ Optics, spectroscopy, plasma and lasers

## PERSONAL SKILLS

Mother tongue(s)	Romanian				
Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
	English	C2	C2	C2	C2
	French	B1	B1	B1	B1
Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user					

<b>Managerial skills</b>	▪ Over 9 years of leadership as head of department with over 20 members in 2 national research institutions in Romania (INFLPR and ELI-NP)
<b>Supervising activities</b>	▪ Coordinated 2 PhD students and 2 postdoctoral researchers, INFLPR, 2011-2019 ▪ PhD supervisor at SDIALA of 6 students/researchers, starting with 2020

<b>Scientific and managerial activity</b>	▪ Over 100 publications in journals (ISI), proceedings of international and national conferences, etc. ▪ Project director or partner responsible in 10 research projects funded by European Space Agency (ESA), UEFISCDI, EURATOM, COST, IFA ▪ Number of citations: over 1300 in Google Scholar, Hirsh index 19
<b>Professional Activity</b>	▪ Initiated new fields of research in physics in Romania: -2010: physics of complex plasmas (plasmas with strongly coupled microparticles); -2018: demonstrated for the first time the dynamic influence of electron beams with ~10 keV energy on

	<p>microparticles;</p> <p>-2022: application of machine learning in the field of lasers and plasma;</p> <p>-2023: demonstrated micro-turbulence in complex plasmas induced with an electron beam</p> <ul style="list-style-type: none"> <li>▪ Referee for journals: Applied Physics Letters, Physical Review Letters, Physics of Plasmas, IEEE Transactions on Plasma Science, Plasma, Contributions to Plasma Physics, Plasma Sources Science and Technology, Plasma Physics and Controlled Fusion, Chaos, Applied Surface Science, Journal of Imaging, Vacuum, Romanian Reports in Physics, Fusion Design and Engineering, Journal of Imaging, Radiation Physics and Chemistry, etc.</li> <li>▪ Referee for research funding agencies: NSF-DOE (USA), FWO (Belgium), FONDECYT (CHILE), NCN (Poland), UEFISCDI (Romania)</li> <li>▪ Member of the Organizing Committee of ELI-NP Autumn School, 2020, ELI-NP, Măgurele-Ilfov, Romania</li> <li>▪ Member of the Organizing Committee of the Plasma Physics and Applications Conference (CPPA) 2018-Iasi, Romania</li> <li>▪ Co-organizer with Tom Intrator and Scott Hsu (Los Alamos National Laboratory) of the 2006 Plasma Physics Summer School, June-Aug., Los Alamos National Laboratory, New Mexico</li> <li>▪ Co-organizer with Tom Intrator, Leonid Dorf, Zhehui Wang and Glen Wurden (Los Alamos National Laboratory) of the 2005 Nano-Micro Gadgets Mini Conference, September 15, Santa Fe, New Mexico</li> <li>▪ 3 patents (two applications and one granted): OSIM-Romania (2) and USPTO-USA (1)</li> </ul>
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Awards and Honors	<ul style="list-style-type: none"> <li>▪ The article "Conical Coil Focusing of Laser-Plasma Accelerated Proton Beams for Applications", authors L. Nalbaru, M. Arnold, C.M. Ticoș, was an Editors' Suggestion in Physical Review Accelerators and Beams (2025)</li> <li>▪ The article "Classification of laser beam profiles using automatic learning at the ELI-NP high-power laser system", authors V. Gaciu, I. Dăncuș, B. Diaconescu, D. G. Ghiță, E. Slușanschi, C. M. Ticoș, was nominated in the "Featured" category in AIP Advances, 2024.</li> <li>▪ The article by E. Molnar, D. Stutman, C. Ticoș, with the title "Optimizing direct laser-driven electron acceleration and energy gain at ELI-NP"- EPJD 74, 229 2020, was nominated by the European Physical Journal D in the "EPJ D Highlight" section.</li> <li>▪ The article by C.M. Ticoș, D. Ticoș, J.D. Williams, with the title "Kinetic effects in a plasma crystal induced by an external electron beam" - PoP 26, 43702 2019, was nominated by the Physics of Plasmas magazine in the "Latest advancements in Dusty Plasmas" section, 2020.</li> <li>▪ Finalist of "Best Image and Video in Plasma Physics", European Physical Society-Plasma Physics, July 2-6, 2018, Prague, Czech Republic.</li> <li>▪ The article by C.M. Ticoș, A. Scurtu, D. Ticoș, with the title "A pulsed "plasma broom" for dusting off surfaces on Mars", published in New Journal of Physics 19, 063006/1-11(2017) was featured in: <ul style="list-style-type: none"> <li>- Physicsworld.com, 9 Jun 2017/first page;</li> <li>- Nature Physics 13, 623 (2017) in the Research Highlights section</li> <li>- Included in the exclusive "Highlights of 2017" collection of New Journal of Physics.</li> </ul> </li> <li>▪ The Radu Grigorovici Award of the Romanian Academy for 2014 (awarded in 2016).</li> <li>▪ The Best Speaker Prize of the International Workshop on the Frontiers of Modern Plasma Physics, 14-25 July 2008, Abdus Salam International Center for Theoretical Physics, Trieste, Italy.</li> <li>▪ Young Scientist Medal and Certificate, The Fifth International Conference on the Physics of Dusty Plasmas, 18-23 May 2008, Ponta Delgada, Azores, Portugal.</li> <li>▪ Graduate Students Association Award, 25 Apr. 2002, University of Miami, Florida, USA.</li> <li>▪ 3rd prize at the Fourth and the Fifth Annual UM Graduate Student Research &amp; Creativity Forum, 18 Nov. 1999 and 1st Mar. 2001, University of Miami, Florida, USA.</li> <li>▪ Outstanding Teaching Assistant Award, 2000, Department of Physics, University of Miami, Florida, USA.</li> </ul>
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## Refereed papers

- [101] A Scurtu, D Ticoș, C Diplășu, N Udrea, ML Mitu, B Paraschiv, CM Ticoș  
Ultra-rapid direct dissociation of CO<sub>2</sub> with dense pulsed plasma jets for Martian oxygen production  
Journal of CO<sub>2</sub> Utilization 104, 103326 (2026)
- [100] Harnessing high-density pulsed plasma for sustained oxygen supply on Mars  
A Scurtu, D Ticoș, C Diplășu, N Udrea, ML Mitu, B Paraschiv, CM Ticoș  
Energy Conversion and Management: X, 101495 (2025)
- [99] Computer vision-based image analysis to characterize turbulent strongly coupled dusty plasma  
V Gaciu, D Ticos, N Udrea, ML Mitu, A Scurtu, CM Ticos  
University Politehnica of Bucharest Scientific Bulletin-series A-Applied Mathematics and Physics 87 (4), 225-237 (2025).
- [98] L. Nalbaru, M. Arnold, C.M.Ticoș  
Conical Coil Focusing of Laser-Plasma Accelerated Proton Beams for Applications  
Physical review accelerators and beams 28, 114701 (2025)
- [97] A. Magureanu, G. Dorcioman, , S.A. Irimiciuc, A. Zubarev, G. Bleotu, P. Garoi, R. Udrea, C. Jalbă, C. Gheorghiu, D.G. Ghiță, M.-D. Mihai, D. Iancu, B. Diaconescu, D. Ursescu, V. Craciun, C.M. Ticos  
Development of Ultra-Low Density Foam Targets for Enhanced Laser-Plasma Proton Acceleration  
(submitted, in review)
- [96] R. Iovănescu, R.P. Daia, A.C. Girlea, E.I. Slușanschi, C.M. Ticoș  
Laser wakefield electron acceleration in a periodically modulated plasma density profile (submitted, in review)
- [95] N Udrea, ML Mitu, A Scurtu, D Ticoș, CM Ticoș  
Multitrajectory Dynamics of Cylindrical Particles in the Plasma Sheath Under Low Magnetic Fields  
IEEE Transactions on Plasma Science, accepted for publication 53(11), 3233 (2025).
- [94] M.L. Mitu, D. Ticoș, N. Udrea, A. Scurtu, C.M.Ticoș  
Machine learning-based prediction of microparticle dynamics in externally driven strongly-coupled dusty plasmas  
Machine Learning: Science and Technology 6 (4), 045009 (2025).
- [93] A. Scurtu, D. Ticoș, C. Diplășu, N. Udrea, M. L. Mitu, B. Paraschiv, C. M. Ticoș,  
Pulsed coaxial plasma jets for CO<sub>2</sub> dissociation at Martian pressures: Magnetic confinement for modeling local supercritical conditions,  
Results in Physics 76, 108395 (2005).
- [92] D. Nistor, A.D. Dumitru, C. Derycke, O. Chalus, D. Ursescu, C. Ticoș  
Assessing Optical Damage Risks by Simulating the Amplification of Back-Reflection in a Multi-Petawatt Laser system  
High Power Laser Science and Engineering 13, e65 (2025).
- [91] D. Nistor, A. Naziru, A. Magureanu, D. Matei, C. Derycke, O. Chalus, V. Nastasa I. Dancus, M. Gugiu, D. Ursescu, T. Jitsuno, B. Diaconescu, Th. Asavei, S. Balascuta, M. Cernaianu, V. Gaciu, D.G. Ghita, A.M. Lupu, M. Patrascoiu, M. Tataru, L. Tudor, C. M. Ticoș, P. Ghenuche, D. Doria  
Commissioning of the Back-Reflection Monitoring System for Multi-Petawatt Irradiation of Solid Targets at ELI-NP  
High Power Laser Science and Engineering, submitted, in review (2025).
- [90] A. Măgureanu, S. Bălășcuță, P. Ghenuche, M. O. Cernăianu, L. Tudor, V. Nastasa, D.G. Ghiță, B. Diaconescu, D. Doria, C.M Ticoș  
Image-based diagnostics of the plasma produced in 1 PW laser experiments  
Romanian Reports in Physics in press (2025).
- [89] R. Iovănescu, R.P. Daia, E.I. Slușanschi, C.M. Ticoș  
Electron Filament Structures of Injected Electrons in LWFA  
IEEE Transactions on Plasma Science 53(4), 780-787 (2025).
- [88] A. Scurtu, M. Dumitru, P. Garoi, A.M. Bănici, C. Radu, D. Ticoș, N. Udrea, M.L. Mitu, C.M. Ticoș  
Enhancement of luminescence of ZnS: Ag treated in low power radio frequency argon plasma and excited with an electron beam at 13 keV  
Materials Science in Semiconductor Processing 188, 109259 (2025).

- [87] M.O. Cernaianu, P. Ghenuche, F. Rotaru, L. Tudor, O. Chalus, C. Gheorghiu, D.C. Popescu, M. Gugiu, S. Balascuta, A. Magureanu, M. Tataru, V. Horny, B. Corobean, I. Dancus, A. Alincutei, T. Asavei, B. Diaconescu, L. Dinca, D.B. Dreghici, D.G. Ghita, C. Jalba, V. Leca, A.M. Lupu, V. Nastasa, F. Negoita, M. Patrascioiu, F. Schimbeschi, D. Stutman, C. Ticos, D. Ursescu, A. Arefiev, P. Tomassini, V. Malka, S. Gales, K.A. Tanaka, C.A. Ur, D. Doria  
Commissioning of the 1 PW experimental area at ELI-NP using a short focal parabolic mirror for proton acceleration  
Matter and Radiation at Extremes 10 (2), 027204 (2025).
- [86] M. Patrascioiu, L. Tudor, B. Diaconescu, G. Ghiță, G.O. Dontu, C.M. Ticoș  
Particle steering system for laser-plasma accelerated protons  
University Politehnica of Bucharest Scientific Bulletin-series A-Applied Mathematics and Physics, 87 (2), 173-184 (2025).
- [85] D. Nistor, A. Magureanu, C.M. Ticoș  
A geometrical model for plasma mirror alignment in high-power laser experiments  
University Politehnica of Bucharest Scientific Bulletin-series A-Applied Mathematics and Physics 87 (2), 127-138 (2025).
- [84] D. Ticoș, A. Scurtu, M.L. Mitu, N. Udrea, M. Oane, J. Williams, C.M. Ticoș  
Symmetrical vortices and laminar dust flow induced by an intense electron beam interacting with a strongly coupled dusty plasma  
Physics of Plasmas 31, 083703 (2024).
- [83] R. Iovănescu, R.P. Daia, E.I. Slușanschi, C.M. Ticoș  
Electron dynamics in a relativistic central field approach associated with laser acceleration of electrons  
Rom. J. Phys 69 (7-8), 501 (2024)
- [82] A. Scurtu, D. Ticoș, N. Udrea, M.L. Mitu, C.M. Ticoș  
Thrust of a pulsed plasma jet measured from deviations of a ballistic pendulum  
Physica Scripta 99, 095607 (2024).
- [81] V. Gaciu, I. Dăncuș, B. Diaconescu, D. G. Ghiță, E. Slușanschi, C. M. Ticoș,  
Classification of laser beam profiles using machine learning at the ELI-NP high power laser system  
AIP Advances 14, 045114 (2024).
- [80] E.-M. Pavelescu, D. Ticoș, O. Ligor, C. Romanițan, A. Matei, F. Comănescu, V. Țucureanu, S.I. Spănulescu, C. Ticoș, T. Ohshima, T. Nakamura, M. Imaizumi, R.S. Goldman, A. Wakahara, K. Yamane  
Enhancement in photoluminescence from GaPAsN/GaP alloys by 6-MeV electrons irradiation and rapid thermal annealing  
Optical Materials 149, 115075 (2024).
- [79] A. Scurtu, D. Ticos, M.L. Mitu, M. Dumitru, N. Udrea, C.M. Ticoș  
Induced ageing of ZnS: Ag microparticles exposed to 13 keV electron beam  
Physica Scripta 99 (2), 025404 (2024).
- [78] C. Jalba, L. Dinca, N. Djourellov, C. Ticoș, A. Magureanu, B. Diaconescu,  
The importance of chemical shift screening of the precursors for increasing the exfoliation efficiency of the graphite layers  
University Politehnica of Bucharest Scientific Bulletin-series A-Applied Mathematics and Physics 85 (3), 131 (2023).
- [77] R. Anirudh , R. Archibald , M. S. Asif et al.,  
2022 Review of Data-Driven Plasma Science  
IEEE Transactions on Plasma Science 51 (7), 1750 (2023).
- [76] D. Ticoș, E. Constantin, M.L. Mitu, A. Scurtu, C.M. Ticoș  
A laboratory platform for studying rotational dust flows in a plasma crystal irradiated by a 10 keV electron beam,  
Scientific Reports 13 (1), 940 (2023).
- [75] A. Scurtu, D. Ticoș, M.L. Mitu, C. Diplășu, N. Udrea, C.M. Ticoș  
Splitting CO<sub>2</sub> in Intense Pulsed Plasma Jets,  
International Journal of Molecular Sciences 24 (8), 6899 (2023).
- [74] N. Udrea, M.L. Mitu, A. Scurtu, D. Ticoș, C.M. Ticoș

- Chaotic Oscillations of Vertically Aligned Microrods in a Plasma Sheath, IEEE Transactions on Plasma Science 51 (3), 835-846 (2023).
- [73] M. Galatanu, M. Enculescu, A. Galatanu, D. Ticos, M. Dumitru, C. Ticoș  
Microengineering Design for Advanced W-Based Bulk Materials with Improved Properties, Nanomaterials 13 (6), 1012 (2023).
- [72] R. Iovanescu, R.P. Daia, E.I. Slusanschi, C.M. Ticoș,  
Optimisation of particle-in-cell simulations for laser wakefield acceleration, University Politehnica of Bucharest Scientific Bulletin-series A-Applied Mathematics and Physics 85 (9), 159 (2023).
- [71] A. Scurtu, D. Ticoș, M.L. Mitu, N. Udrea, C.M. Ticoș  
Stretching and Compression of Double Dusty Plasma Vortex, Crystals 13 (1), 76 (2023)
- [70] D. Ticoș, M. Galațanu, A. Galațanu, M. Dumitru, M.L. Mitu, N. Udrea, A. Scurtu, C.M. Ticoș  
Irradiation of W and K-Doped W Laminates without or with Cu, V, Ti Interlayers under a Pulsed 6 MeV Electron Beam, Materials 15 (3), 956 (2022).
- [69] 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, C.M. Ticoș,  
Target characteristics used in laser-plasma acceleration of protons based on the TNSA mechanism, Frontiers in Physics 10, 727718 (2022).
- [68] I. Ouatu, B. T. Spiers, R. Aboushelbaya, Q. Feng, M. W. von der Leyen, R. W. Paddock, R. Timmis, C. Ticoș, K. M. Krushelnick, and P. A. Norreys,  
Ionization states for the multipetawatt laser-QED regime, Physical Review E 106, 015205 (2022).
- [67] D. Ticoș, A. Scurtu, J.D. Williams, L. Scott, E. Thomas, Jr., D. Sanford, C.M. Ticoș,  
Rotation of a strongly coupled dust cluster in plasma by the torque of an electron beam, Physical Review E 103, 023210 (2021).
- [66] O. Budrigă, C.M. Ticoș  
Modeling the electron acceleration in relativistic channels for space irradiation applications, Plasma Physics and Controlled Fusion 62 (12), 124001 (2020).
- [65] E.-M. Pavelescu, O. Ligor, J. Occena, C. Ticoș, A. Matei, R. Gavrila, K. Yamane, A. Wakahara, R.S. Goldman  
Influence of electron irradiation and rapid thermal annealing on photoluminescence emission from GaAsNBi alloys, Applied Physics Letters 117 (14), 142106 (2020).
- [64] E. Molnár, D. Stutman, C. Ticoș  
Optimizing direct laser-driven electron acceleration and energy gain at ELI-NP, The European Physical Journal D 74 (12), 1-12 (2020).
- [63] D. Doria, M.O. Cernaianu, P. Ghenuche, D. Stutman, K.A. Tanaka, C. Ticos, C. A. Ur  
Overview of ELI-NP status and laser commissioning experiments with 1 PW and 10 PW class-lasers, Journal of Instrumentation 15 (09), C09053 (2020).
- [62] C.M. Ticoș, D. Ticoș, J.D. Williams  
Pushing microscopic matter in plasma with an electron beam, Plasma Physics and Controlled Fusion 62, 025003 (2020).
- [61] M. Ganciu, A. Chiroșca, A. Groza, E. Stancu, O. Stoican, D.B. Dreghici, B. Butoi, C. Ticoș, B. Cramariuc  
Radiation dose simulation during laser-plasma proton acceleration experiments and method to increase the measurement resolution of the proton energy spectrum, Romanian Cyber Security Journal 1 (2), 13 (2019).
- [60] D. Ticoș, A. Scurtu, M. Oane, C. Diplăsu, G. Giubega, I. Călina, C.M. Ticoș  
Complementary dosimetry for a 6 MeV electron beam, Results in Physics 14, 102377 (2019).
- [59] C.M. Ticoș, D. Ticoș, J.D. Williams  
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- Physics of Plasmas 26, 43702 (2019).
- [58] I.N. Mihăilescu, M. Oane, C.M. Ticoș, C. Ristoscu, M. Bădiceanu  
Linear Fourier Model Predictions in Case of Solids under IR FS Laser Irradiation,  
Journal of Lasers, Optics & Photonics 6(1), 1000194 (2019).
- [57] L. Avotina, M. Lungu, P. Dinca, B. Butoi, G. Cojocaru, R. Ungureanu, A. Marcu, C. Luculescu, C. Hapenciuc, P.C. Ganea, A. Petjukevics, C.P. Lungu, G. Kizane, C.M. Ticoș, S. Antohe  
Irradiation of nuclear materials with laser-plasma filaments produced in air and deuterium by terrawatt (TW) laser pulses,  
Journal of Physics D-Applied Physics 51, 25302 (2018).
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Cracks and nanoparticles produced on tungsten surface by dense plasma jets,  
Applied Surface Science 434, 1122-1128 (2018).
- [55] C.M. Ticoș, A. Scurtu, D. Ticoș,  
A pulsed "plasma broom" for dusting off surfaces on Mars, New Journal of Physics 19, 063006 (2017).
- [54] M. G. Florescu, O. G. Dului, D. Pantazi, C. M. Ticoș, D. Sporea, R. Vasilache, V. Ionescu, M. Oane,  
Radiological safety assessment for the experimental area of a hyper-intense laser with peak-power of 1 PW—CETAL,  
Radiation Protection Dosimetry 175 (1), 104-109 (2017).
- [53] M. Oane, I.N. Mihailescu, A. Buca, C. Ristoscu, G. Popescu-Pelin, C.M. Ticoș  
Two-temperature model using the Cattaneo-Vernotte equation in the Anisimov-Nolte model for application in laser additive manufacturing,  
Digest Journal of Nanomaterials and Biostructures 12, 1247-1257 (2017).
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Precession of cylindrical dust particles in the plasma sheath,  
Physics of Plasmas 22 (10), 103704 (2015).
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Simulations for protons and electrons acceleration with the 1 PW laser pulse from CETAL facility,  
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Experimental demonstration of Martian soil simulant removal from a surface using a pulsed plasma jet,  
Review of Scientific Instruments 86, 033509 (2015).
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Stepped heating procedure for experimental SAR evaluation of ferrofluids,  
Material Letters E 38, 57 (2015).
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Collimated electron beam accelerated at 12 kV from a Penning discharge,  
Review of Scientific Instruments 86, 013301 (2015).
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Highly accelerated microparticles in plasma flows,  
Romanian Reports in Physics 67 (3), 1018 (2015).
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Semi-analytical solution of the thermal field distribution in a semiconductor under simultaneous irradiation by three laser fields,  
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General two -photons non-Fourier model for weak laser-solid interaction, Journal of Intense Pulsed Lasers and Applications in Advanced Physics 5 (1), 5-8 (2015).
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Thermal phenomena induced in a small tungsten sample during irradiation with a few MeV electron beam: Experiment versus simulations,  
Nuclear Instruments and Methods in Physics Research B 337, 17-20 (2014).

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Invited Talks	<p>[20] Classification of PW beam profiles using machine learning techniques at ELI-NP, User Meeting 2025, 18-20 June 2025, ELI-ALPS, Szeged, Hungary</p> <p>[19] High power lasers in the medicine of XXI century, "Tehnologia &amp; IHealth în Medicina Sec. XXI" – Târgu-Mureș, 5-7 July 2022</p> <p>[18] Kinetic Effects Induced in a Plasma Crystal by an Electron Beam, 18th International Conference on Plasma Physics and Applications CPPA 2019, 20-22 June, Iasi, Romania.</p> <p>[17] Pushing Charged Microparticles with an Electron Beam in a Plasma Crystal, INDLAS, 2-7 Sept. 2018, Alba Iulia.</p> <p>[16] Solar Panel Cleaning on Mars, IONS, 25-28 July 2017, Balvanyos, Romania.</p> <p>[15] The CETAL-PW Laser at Bucharest as an Irradiation Facility, COST TD1025 SYRA3, WG3 Meeting, Bucharest 29 Feb. 2016, Romania.</p> <p>[14] The Bucharest PW at the CETAL Facility, 5th CLPU Users Meeting, 1st -2nd Dec. 2015, Salamanca,</p>
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	<p>Spain.</p> <p>[13] Nano structures produce at the interaction of energetic plasma with surfaces, Int. Workshop on Advances in Nanophysics and Nanophotonics 31st Aug. -2nd Sept. 2015, Magurele, Romania.</p> <p>[12] Technology for manipulation and removal of dust for Mars missions, Romanian Space Week, 27-29 May 2015, COMOTI, Bucharest, Romania.</p> <p>[11] Dusty Plasmas: a Review of Experiments and Possible Applications, International Student Conference on Photonics 2012, 8-11 May, Sinaia, Romania.</p> <p>[10] Extreme Light Infrastructure-Nuclear Pilar (ELI-NP) in Romania, Los Alamos National Laboratory, 1st Oct. 2010, New Mexico, USA.</p> <p>[9] Experiments in Dusty Plasmas: Interaction of Dust Particles with a Plasma Jet, International Advanced Workshop on the Frontiers of Plasma Physics, 5-16 July 2010, Trieste, Italy.</p> <p>[8] Dust Crystal Interaction with Plasma Jet, Summer College on Plasma Physics, 10-28 Aug. 2009, Trieste, Italy.</p> <p>[7] Interaction of Dust Particles with Plasma Jets, International Balkan Workshop on Applied Physics-IBWAP 2009, 6-8 July, Constanta, Romania.</p> <p>[6] Observation of Hypervelocity Dust in Dense Supersonic Plasma Flows: Physics and Applications, International Workshop on the Frontiers of Modern Plasma Physics, 14-25 July 2008, ICTP, Trieste, Italy.</p> <p>[5] A New Parameter Regime for Dust in Plasma: the Case of Dense and Supersonic Plasma Flow, International Conference on Physics of Dusty Plasmas ICPDP5, 18-23 May 2008, Ponta Delgada, Azores, Portugal.</p> <p>[4] Dust as a Diagnostic Tool in RF Plasma Sheaths and in Fusion Plasmas, Applied Materials, Inc., 4 Dec. 2006, Santa Clara, California, USA.</p> <p>[3] Pressure triggered collective oscillations of a dust crystal in a capacitive RF plasma, 31st European Physics Conference on Plasma Physics EPS 2004, 29 June -2nd July, London, UK.</p> <p>[2] Oscillations of Dust Particles Due to Wake Fields: An Experimental Demonstration, International Topical Conference on Plasma Physics ICTP 2003, 7-12 Sept., Santorini, Greece.</p> <p>[1] Chaos and Control of Chaos in Experimental Plasmas, Illinois State University, 19 Nov. 2002, Bloomington, IL, USA.</p>
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Talks	<p>[24] Ultra-Low Density Foam Targets for Enhanced Laser-Plasma Proton Acceleration, American Physical Society (APS)-Division of Plasma Physics (DPP) Nov.17-21, 2025, Long Beach California, USA</p> <p>[23] Solar panel cleaning on Mars with a pulsed plasma jet, 15th Dusty Plasma Workshop, 29 May-1st June 2018, Baltimore, USA.</p> <p>[22] Pushing charged dust with an electron beam in a plasma crystal, 45th Conference on Plasma Physics EPS 2018, 2-6 July, Prague, Czech Republic.</p> <p>[21] Turbulent charged microparticle flow induced by the drag force of an electron beam, International Balkan Workshop on Applied Physics -IBWAP 10-13 July 2018, Constanta, Romania.</p> <p>[20] Particle acceleration by a channeling laser pulse in gas at CETAL PW facility, 5th International Conference on Mathematics and Computers in Sciences and Industry, 25-27 Aug. 2018, Corfu, Greece.</p> <p>[19] Particle Image Velocimetry and Particle Tracking Velocimetry for Plasma Flow Characterization, 5th International Conference on Mathematics and Computers in Sciences and Industry, 25-27 Aug. 2018, Corfu, Greece.</p> <p>[18] Experimental plasma crystal interaction with an electron beam accelerated at 15 kV, 8th International Conference on the Physics of Dusty Plasmas ICPDP8, 20-25 May 2017, Prague, Czech Republic.</p> <p>[17] A pulsed plasma jet for dusting off surfaces on Mars, 17th International Conference on Plasma Physics and Applications CPPA 2017, 15-20 June, Magurele, Romania.</p> <p>[16] Conceptual Design of Electron Spectrometer for Laser-Plasma Experiments, APSAC 27-29 Sept. 2017, Dubrovnik, Croatia</p> <p>[15] High Speed Imaging of Plasmas, Histeresis &amp; Princeton Instruments, 3 Mar. 2016, Physics National Library, Magurele, Romania.</p> <p>[14] Surface modification and heating of fusion compatible materials exposed to a few MeV electron beam and plasma jet, 1st EURATOM-FUSION Research Unit Days Meeting, 14th May 2015, IFA, Bucharest, Romania.</p> <p>[13] Dust removal from surfaces in a low-pressure environment</p>
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	<p>41st European Physics Society EPS, 24-27 June 2014, Berlin, Germany.</p> <p>[12] Laser plasma accelerator at CETAL PW, First CETAL- Petawatt Workshop, 19-20 Nov. 2013, Magurele, Romania.</p> <p>[11] Dust Particles Acceleration in Plasma Flows, 16th Conference on Plasma Physics and Applications CPPA2013, 20-25 June 2013, Magurele, Romania.</p> <p>[10] Dust Particles Interaction with Plasma Jet, 15th Conference on Plasma Physics and Applications CPPA2010, 1st July 2010, Iasi, Romania.</p> <p>[9] Dusty Plasmas at INFLPR, Seminar, 24 Sept. 2009, INFLPR, Bucharest, Romania.</p> <p>[8] Hypervelocity Dust Storm Launched with a Coaxial Plasma Gun, Pulsed Power and Plasma Physics Conference, 21 June 2007, Albuquerque, NM, USA.</p> <p>[7] Experimental Demonstration of Hypervelocity Storm Launched from a Coaxial Plasma Gun, Los Alamos National Laboratory Plasma Physics Seminar, 31 May, 2007, Los Alamos, NM, USA.</p> <p>[6] Dynamics of Dust Grains in RF Plasma Sheaths, Nano-Micro Gadgets 2005 Mini Conference, 15 Sept., Santa Fe, NM, USA.</p> <p>[5] Dynamics of Dust Grains in the RF Plasma Sheath: An Experimental Investigation, Seminar, Theory Group T-15, 22 Aug. 2005, Los Alamos National Laboratory, USA.</p> <p>[4] Experiments with Dust Grains in RF Plasmas, Los Alamos National Laboratory Plasma Physics Seminar, 15 June 2005, USA.</p> <p>[3] Hypervelocity Dust Injection (HDI) for Magnetic Field Diagnostics in a Hot Plasmas, Dust in Fusion Plasmas Meeting (DFP 2005), 5 Apr. 2005, Napa, CA, USA.</p> <p>[2] Review of Experimental Results Obtained in Oxford: Dust Grains in a RF Plasma Sheath, Workshop on Dusty Plasma, Meeting of the European Network "Complex Plasmas", 1st – 5 June 2004, Capri, Italy.</p> <p>[1] The Charge on Dust Particles in the Sheath of a RF Plasma with DC Negative Bias, Meeting of the European Network "Complex Plasmas", 27-28 Feb. 2003, University of Oxford University, UK</p>
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