

LIST OF PAPERS

1. Bogdan M. Mihalcea, Vladimir Filinov, Roman Syrovatka, Leonid Vasilyak, *The physics and applications of strongly coupled plasmas levitated in electrodynamic traps* (2019) -- under evaluation -- ; **arXiv:** <https://doi.org/10.48550/arXiv.1910.14320> **(10.2019)**
2. Bogdan M. Mihalcea, *Quasienergy operators and general squeezed states for systems of trapped ions*, Ann. Phys. **442** (7) 169826 (2022); <https://doi.org/10.1016/j.aop.2022.168926>; <https://doi.org/10.48550/arXiv.2108.11628>
3. Bogdan M. Mihalcea, S. Lynch, *Investigations on dynamical stability in 3D quadrupole ion traps*, Applied Sciences **11** (7) 2938 (2021); <https://doi.org/10.3390/app11072938>
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5. A. Groza, M. Șerbănescu, B. Butoi, E. Stancu, M. Straticiu, I. Burducea, A. Bălan, A. Chiroșca, B. Mihalcea, M. Ganciu, *Advances în Spectral Distribution Assessment of Laser Accelerated Protons using Multilayer CR-39 Detectors*, Applied Sciences **9** (10) 2052 (2019); <https://doi.org/10.3390/app11072938>
6. M. Ganciu, A. Groza, O. Cramariuc, B. Mihalcea, M. Șerbănescu, E. Stancu, A. Surmeian, B. Butoi, D. Dreghici, A. Chiroșca and B. Cramariuc, *Hardware and software methods for radiation resistance rising of the critical infrastructures*, Romanian Cyber Security J. **1** (1), p. 3 - 13 (2019) ; https://rocys.ici.ro/documents/spring2019/article_1.pdf
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9. B. M. Mihalcea, L. C. Giurgiu, C. Stan, G. T. Vişan, M. Ganciu, V. Filinov, D. Lapitsky, L. Deputatova, and R. Syrovatka, *Multipole electrodynamic ion trap geometries for microparticle confinement under standard ambient temperature and pressure conditions*, J. Appl. Phys. **119** (11) 114303 (2016); <https://doi.org/10.1063/1.4943933>
10. B. M. Mihalcea, C. Stan, L. C. Giurgiu, A. Groza, A. Surmeian, M. Ganciu, V. Filinov, D. Lapitsky, L. Deputatova, L. Vasilyak, V. Pecherkin, V. Vladimirov, and R. Syrovatka, *Multipole traps as tools in environmental studies*, Rom. Journ. Phys. **61** (7 - 8), p. 1395 - 1411 (2016); http://www.nipne.ro/rjp/2016_61_7-8/RomJournPhys.61.p1395.pdf
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INTERNATIONAL CONFERENCES & WOKSHOPS – Selected list

Over 75 international conferences and workshops with peer-reviewed contributions, 7 invited papers

1. B. Mihalcea, *Coherent and squeezed states associated to trapped ion systems. Applications in quantum optics and precision measurements*, 9th Meeting on CPT and Lorentz Symmetry (CPT'22), University of Indiana, Bloomington, USA, 17 – 26 May 2022; <https://lorentz.sitohost.iu.edu/cpt22/program.html> – Invited contribution
2. B. Mihalcea, *Investigations on Dynamical Stability in Quadrupole Ion Traps*, IUCSS Standard Model Extended (SME) 2021 Summer School and Workshop, University of Indiana, Bloomington, USA, 21 – 30 May 2021; <https://iucss.sitohost.iu.edu/sme2021/program.html>
3. B. Mihalcea, 8th IAA Conf. On space Systems as Critical Infrastructure: *From kilograms to kilobytes*, Title: *Mass spectrometry with ion traps. Towards extreme accuracy in metrology*, Mamaia, 27 - 28 June 2019 – Oral Paper
4. B. Mihalcea, *Mass spectrometry and quantum optics with ion traps. Space applications*, Invited Paper, Scientific Kick-Off Meeting COST Action CA 17113 Trapped Ions: Progress in Classical and Quantum Applications (TIPICQA), Granada, 6-8 March 2019 - Invited presentation
5. B. Mihalcea, *Quantum technology based on ultracold atoms. Applications in global sensing*, 7th IAA Conf. on Space Systems as Critical Infrastructure, 2 - 3 August 2018, Mamaia – Oral Paper
6. B. Mihalcea, *Cold atom interferometry-Common Optical Optimisation Laboratory (COOL) ESA Initiative*, Workshop CETAL 2018, 17 – 18 July 2018, Măgurele, Oral Paper
7. B. Mihalcea, *Nanosatellites for space, quantum science and national security. Optical Atomic Clocks*, 6th IAA Conf. on Space Systems as Critical Infrastructure: *Disruptive Innovation and critical space infrastructure*, 3 - 4 August 2017, Mamaia – Oral Paper

8. B. Mihalcea, *Radiation Hardness Assessment (RHA) Studies and Tests on satellite onboard optoelectronic components and systems*, Workshop CETAL 2017, 4 - 6 July 2017, Măgurele; http://cetal.inflpr.ro/_files/workshop/2017/WORKSHOP%20CETAL%202017.pdf
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12. A. Groza, A. Surmeian, C. Diplașu, C. Luculescu, B. Mihalcea, M. Ganciu, *Anodization process analysis of the aluminum surfaces in corona discharge*, 32nd ICPIG Conf., 26 -31 July 2015, Iași, Romania; Poster P3 - 44
13. A. Surmeian, C. Diplașu, A. Groza, B. Mihalcea, M. Ganciu, *A New Mass Spectrometry Analytical Method Assisted by Laser Desorption*, 32nd ICPIG Conf., 26 -31 July 2015, Iași, Romania; Poster P1 - 49
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53. O. Gheorghiu[†], B. Mihalcea, D. Cacicovschi[†], L. Giurgiu, A. Niculescu, *The M8 and M9 masers as the National Frequency Standard at the Natl. Inst. of Metrology-Bucharest*, Progr. of the General Conf. of the Balkan Phys. Union, p. 58, Sept.1994, Izmir, Turkey

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PATENTS

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3. Mihai Ganciu Petcu, Marius Ioan Piso, Ovidiu-Sorin Stoican, Bogdan-Vasile Mihalcea, C.

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 10. O. Stoican, L. Giurgiu, B. Mihalcea, D. Cacicovschi[†], V. Gheorghe, *Electronic supply block for a store snare of loaded microparticles*, Patent **RO110371B1**, BOPI nr. 12/95 **(1995)**
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MANAGING AND RESEARCH ABILITIES

Solid managerial competence, with over 20 years of experience in coordinating complex research themes (with different partners from research institutes and universities from EU and Romania), and a large number of projects awarded. These are:

1. ***International Space Station – Space Optical Clock – Pathfinder (I-SOC-PF)***, ESA candidate mission, Phase AB, Duration : ?. Position: Science Team member.
2. ***Trapped Ions: Progress in Classical and Quantum Applications (TIPICQA)***, COST Action CA 17113, Duration: 09. 2018 – 09.2022. Position: Member of the Management Committee
3. ***Laser Plasma Accelerators as tools for Radiation Hardness Assessment (RHA) Studies and Tests in support of ESA space missions (PARAHARD)***, European Space Agency Contract No. **4000121912/17/NL/CBi**, Duration: 09.2017 - 09.2020, Position: Technical Manager
4. ***Feasibility Study for the Use of the Romanian Cetal Infrastructure***, European Space Agency Contract No. **4000111242/14/NL/CBi**, Duration: 06.2014 - 07.2017, Position: Technical Manager
5. ***Development of quadrupole and multipole ion trap based mass spectrometers for optical characterization and chemical analysis of atmospheric aerosol particles***, ROSA Contract Nr. **136/20. 07. 2017**, Duration: 07. 2017 - 07. 2019. Position: Project Director
6. ***Laser-Plasma Acceleration of Particles for Radiation Hardness Testing (LEOPARD)***, ROSA Project Competence Centre in Space Technologies ID-327, Duration: 11.2013-11.2016, Position: Deputy Project Manager
7. PN-II-ID-PCE / Project PN 90-06.10.2011 ***Electron acceleration and polaritonic transport by laser-plasma interaction in new capillary configuration***, Position: Member of the research team

8. COST Action **MP1001**, *Ion Traps for Tomorrow Applications (IOTA)*, Duration: 12.2010 - 12.2014, Position: Member of the Management Committee
9. PROGRAMME LAPLAS₃ /Project PN 09.39.03.01, 2009 - 2014, *Fundamental and technological research on plasma physics. Applications in nuclear physics and surface engineering*, Position: Member of the research team
10. PROGRAMME LAPLAS 2/ Project PN 06-36.03.01, 2006 - 2008, *Investigation of nonlinear optics, high-resolution spectroscopy, and quantum metrology using confined atomic particles*, Position: Member of the research team
11. MCT Contract **CEEX 05-D11-55/2005**: *Nonlinear structures and scalability limits for quantum logic in ion traps* ELECTROCUANT (10.2005 - 07.2008), Position: Scientific Project Manager.
12. MCT Contract **CEEX 06-D11-37/2006**: *Study of quantum logic and quantum metrology based on electromagnetic traps. Applications in high-precision spectroscopy and in monitoring of environment pollution* LOGICUANT (10.2006 - 09.2008) , Position: Scientific Project Manager
13. MCT Contract **CERES 4-142/12**. 11. 2004: *Hamiltonian dynamics for ions stored in electromagnetic fields. Prospects for non-linear Paul traps towards achieving quantum logic*, (11.2004 - 09.2006), Position: Scientific Project Manager
14. MCT Contract 22 / PN 17 03-02: *Preparation and study of non-classical states of motion for trapped atoms and ions* (2003 - 2006). Position: Scientific Project Manager
15. MCT Grant B54/2001: *The dynamics of an ion confined in an electromagnetic, nonlinear Paul type trap* (11.2001 - 12.2002), Position: Grant Director
16. ANSTI Grant 555/2000: *Classical study on the micromotion of ions confined in electromagnetic Paul traps* (2000), Position: Grant Director
17. MCT Grant 5086-5087/1999: *Researches on microparticle storage in electromagnetic traps*

(11.1999 - 12.2000), Position: Grant Director

18. MCT Contract 555/A54: *Researches on microplasmas with an aim to develop a future time-frequency atomic standard based on trapped ions* (2000 - 2002), Position: Project Manager

19. MCT Contract B29/A20: *Researches on microparticle trapping in multipolar electromagnetic traps* (1999 - 2001), Position: Project Manager