



**Personal
information**

Cătălin Mihai TICOȘ

First names / Surname
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Nationality Romanian
Date of birth 19/07/1972
Gender Male

**Work
experience**

Dates 10/2011-present
Occupation HEAD OF THE ELECTRON ACCELERATORS LABORATORY 230
Main activities and responsibilities Manage the Electron Accelerators Laboratory
Lead a group of young researchers (4 postdocs and a junior researcher)
Member of the Scientific Council
Member of the Steering Committee (10/2011-03/2019)
Name and address of employer National Institute for Laser, Plasma, and Radiation Physics, Electron Accelerators Laboratory 230,
Str. Atomistilor 409, PO Box MG 36, 077125, Magurele-Bucharest, Romania
Date 2009-present (2007-2009 scientist)
Occupation Senior Scientist -CS I
Main activities and responsibilities Principal investigator in Plasma and Radiation Physics
Main research topics: interaction of electron beams with matter, generation of electron beams in plasma discharges and laser-plasma interactions, production of plasma jets and plasma crystals, interaction of THz radiation with dust crystals, synchronization and control of chaos in external-cavity semiconductor lasers.
Name and address of employer National Institute for Laser, Plasma, and Radiation Physics,
Str. Atomistilor 409, PO Box MG 36, 077125, Magurele-Bucharest, ROMANIA
Dates 2004 – 2007
Occupation RESEARCH ASSOCIATE
Main activities and responsibilities Researcher in Plasma Physics
Name and address of employer Los Alamos National Laboratory, Plasma Physics Group P-24, Los Alamos 87545, New Mexico, USA
Dates 2002 – 2004
Occupation RESEARCH ASSOCIATE
Main activities and responsibilities Researcher in Plasma Physics
Name and address of employer University of Oxford, Department of Engineering Science, Oxford OX1 3PJ, UK

Dates 1997 – 2002
 Occupation GRADUATE STUDENT, RESEARCH & TEACHING ASSISTANT
 Main activities and responsibilities Researcher in Plasma and Nonlinear Dynamics and Chaos; Teaching Assistant
 Name and address of employer University of Miami, Department of Physics, Nonlinear Dynamics Lab. & Department of Electrical and Computer Engineering, Optics Lab., Coral-Gables, FL, USA

Dates 1995 – 1997
 Occupation RESEARCH ASSISTANT
 Main activities and responsibilities Researcher in Laser Physics
 Name and address of employer National Institute for Laser, Plasma, and Radiation Physics, Str. Atomistilor 409, O Box MG 36, 077125, Magurele-Bucharest, ROMANIA

Education

Dates 1997-2002
 Title PhD
 Principal subjects Physics (nonlinear dynamics, plasma)
 Experimental control of chaos in dc plasmas, chaotic attractors, fractal dimension, frequency pacing and real time phase synchronization of chaotic plasmas, chaotic electronic circuits (Chua circuit); modeling of chaotic dc glow discharge circuits
 Name of organisation University of Miami, Coral Gables, FL, USA

Dates 1995-1996
 Title MSc (Diplomă de Studii Aprofundate)
 Principal subjects Physics (optotechnics and technologies with lasers and plasma)
 Wavelength tuning of visible and infrared semiconductor lasers, generation of second harmonic (SHG) in nonlinear crystals.
 Name of organisation University of Bucharest, Romania

Dates 1990-1995
 Title Bachelor of Science (Diplomă de Licență)
 Principal subjects Physics (optics, spectroscopy, plasma and lasers)
 Film deposition and nonlinear oscillations in the thermionic vacuum arc (TVA) produced in copper vapors
 Name of organisation University of Bucharest, Romania

Personal skills and competences
 Experimentalist in physics (electron beams, high density plasma jets, dusty plasmas, chaotic plasmas, arc discharges in vacuum, RF and DC plasmas, laser diodes);
 Computer skills: MATLAB, LaTeX, Corel, Vectorworks (CAD), LabView, etc.

Mother tongue Romanian

Other languages **English, French**

Self-assessment	Understanding				Speaking				Writing	
	Listening		Reading		Spoken interaction		Spoken production			
<i>European level</i>										
English	C2	Proficient user	C2	Proficient user	C2	Proficient user	C2	Proficient user	C2	Proficient user
French	B1	Independent user	B1	Independent user	B1	Independent user	B1	Independent user	B1	Independent user

Social skills and competences
 Good ability to adapt to multicultural environments, gained through international experience in research positions in the EU and the USA

Professional activities

- Reviewer for Physics of Plasmas, IEEE Transactions on Plasma Science, Journal of Plasma Physics, Plasma, Contributions to Plasma Physics, Plasma Sources Science and Technology, Chaos, Applied Surface Science, Romanian Reports in Physics, etc.
- Reviewer for NSF/DOE (USA), FWO (Belgium), UEFISCDI (Romania);
- Co-organizer with Tom Intrator and Scott Hsu (Los Alamos National Laboratory) of the Plasma Physics Summer School 2006, June-Aug., Los Alamos National Lab., New Mexico;
- Co-organizer with Tom Intrator, Leonid Dorf, Zhehui Wang and Glen Wurden (Los Alamos National Laboratory) of the Nano-Micro Gadgets 2005 Mini Conference, 15 Sept., Santa Fe, New Mexico.

Grants and Fellowships

- P.I. on "Laser plasma acceleration of electrons to GeV", Institute of Atomic Physics (IFA), Romania, 2014-2016;
- P.I. on "Technology for removing dust on Mars missions", Romanian Space Agency (ROSA), 2013-2016;
- co-P.I. on EURATOM project, "Experimental techniques for surface properties enhancement and nondestructive investigations of high heat flux materials", 2014-2016, IFA, Romania;
- co-P.I. on EURATOM project, "Romanian participation to EUROfusion WPMAT and complementary research / WPMAT-RO", 2016-2018, IFA, Romania;
- co-P.I. on EURATOM project, "Dust generation and ejection due to plasma wall interaction", 2013, IFA, Romania;
- Postdoc Research Grant, "Interaction of Plasma Crystals with Terahertz (THz) Radiation", Institute for Research and Development in Micro-technologies (IMT), Romania, 2010-2012, POSDRU/89/1.5/S/63700;
- Participation in the ELI-NP (Extreme Light Infrastructure-Nuclear Pilar) in 2010, 2011, and CETAL project (Advanced Center for Technologies with Lasers), 2013;
- Travel grant to attend ICPDP5, The National University Research Council, Romania, (~EUR 1900), 2008;
- P.I. on Research grant RP-10 within the PNCDI 2: "Interaction of plasma jets with dust crystals: an experimental study bridging the fields of strongly coupled plasmas and strongly ionized plasmas", The National University Research Council (CNCSIS-UEFISCSU), Romania, 2007-2009;
- Summer Research Fellowships, 1999 - 2001, Univ. Miami, USA;
- Several Travel Grants to attend conferences in the USA between 1999-2002 (from the Univ. of Miami, Naval Research Lab., Univ. of Virginia and UCSD);
- Soros Travel Grant to the USA, to start a PhD in Physics (1997).

Teaching Experience

- Member in the PhD Thesis Committee of 3 PhD Students (Univ. of Bucharest, in 2012, 2015 and 2016);
- Ovidius University, Constanta, Romania, 2010
Faculty of Applied Sciences and Engineering
Taught "Technology of Pulsed Power Circuits" (course and lab) to senior students;
- University of Oxford, UK, 2002
Supervised two senior undergraduate students (from U. Oxford and U. Toronto) who worked as assistants in the plasma laboratory during the period July to September;
- University of Miami, FL, USA, 1997-2002
Taught 106, 108, 206 physics laboratories. Graded homework for 101, 205 physics classes.

Awards and Honors

- Radu Grigorovici Prize of the Romanian Academy for the year 2014 (awarded in 2016).
- 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.
- Young Scientist Medal and Certificate, The Fifth International Conference on the Physics of Dusty Plasmas, 18-23 May 2008, Ponta Delgada, Azores, Portugal.
- Graduate Students Association Award, 25 Apr. 2002, University of Miami, Florida, USA.
- 3rd prize at the Fourth and the Fifth Annual UM Graduate Student Research & Creativity Forum, 18 Nov. 1999 and 1st Mar. 2001, University of Miami, Florida, USA.
- Outstanding Teaching Assistant Award, 2000, Department of Physics, University of Miami, Florida, USA.

Invited Talks

- [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.
- [17] Pushing Charged Microparticles with an Electron Beam in a Plasma Crystal
INDLAS, 2-7 Sept. 2018, Alba Iulia.
- [16] Solar Panel Cleaning on Mars
IONS, 25-28 July 2017, Balvanyos, Romania.
- [15] The CETAL-PW Laser at Bucharest as an Irradiation Facility
COST TD1025 SYRA3, WG3 Meeting, Bucharest 29 Feb. 2016, Romania.

- [14] The Bucharest PW at the CETAL Facility
5th CLPU Users Meeting, 1st -2nd Dec. 2015, Salamanca, Spain.
- [13] Nano structures produce at the interaction of energetic plasma with surfaces,
Int. Workshop on Advances in Nanophys and Nanophotonics 31st Aug. -2nd Sept. 2015, Magurele, Romania.
- [12] Technology for manipulation and removal of dust for Mars missions
Romanian Space Week, 27-29 May 2015, COMOTI, Bucharest, Romania.
- [11] Dusty Plasmas: a Review of Experiments and Possible Applications
International Student Conference on Photonics 2012, 8-11 May, Sinaia, Romania.
- [10] Extreme Light Infrastructure-Nuclear Pilar (ELI-NP) in Romania,
Los Alamos National Laboratory, 1st Oct. 2010, New Mexico, USA.
- [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.
- [8] Dust Crystal Interaction with Plasma Jet,
Summer College on Plasma Physics, 10-28 Aug. 2009, Trieste, Italy.
- [7] Interaction of Dust Particles with Plasma Jets,
International Balkan Workshop on Applied Physics-IBWAP 2009, 6-8 July, Constanta, Romania.
- [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.
- [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.
- [4] Dust as a Diagnostic Tool in RF Plasma Sheaths and in Fusion Plasmas,
Applied Materials, Inc., 4 Dec. 2006, Santa Clara, California, USA.
- [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.
- [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.
- [1] Chaos and Control of Chaos in Experimental Plasmas,
Illinois State University, 19 Nov. 2002, Bloomington, IL, USA.

Talks

- [23] Solar panel cleaning on Mars with a pulsed plasma jet
15th Dusty Plasma Workshop, 29 May-1st June 2018, Baltimore, USA.
- [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.
- [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.
- [20] Particle acceleration by a channeling laser pulse in gas at CETAL PW facility
5th Int. Conference on Mathematics and Computers in Sciences and Industry, 25-27 Aug. 2018, Corfu, Greece.
- [19] Particle Image Velocimetry and Particle Tracking Velocimetry for Plasma Flow Characterization
5th Int. Conference on Mathematics and Computers in Sciences and Industry, 25-27 Aug. 2018, Corfu, Greece.
- [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.
- [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.
- [16] Conceptual Design of Electron Spectrometer for Laser-Plasma Experiments
APSAC 27-29 Sept. 2017, Dubrovnik, Croatia
- [15] High Speed Imaging of Plasmas
Histeresis & Princeton Instruments, 3 Mar. 2016, Physics National Library, Magurele, Romania.
- [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.
- [13] Dust removal from surfaces in a low pressure environment
41st European Physics Society EPS, 24-27 June 2014, Berlin, Germany.
- [12] Laser plasma accelerator at CETAL PW
First CETAL- Petawatt Workshop, 19-20 Nov. 2013, Magurele, Romania.
- [11] Dust Particles Acceleration in Plasma Flows
16th Conference on Plasma Physics and Applications CPPA2013, 20-25 June 2013, Magurele, Romania.
- [10] Dust Particles Interaction with Plasma Jet
15th Conference on Plasma Physics and Applications CPPA2010, 1st July 2010, Iasi, Romania.
- [9] Dusty Plasmas at INFLPR,
Seminar, 24 Sept. 2009, INFLPR, Bucharest, Romania.

- [8] Hypervelocity Dust Storm Launched with a Coaxial Plasma Gun,
Pulsed Power and Plasma Physics Conference, 21 June 2007, Albuquerque, NM, USA.
- [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.
- [6] Dynamics of Dust Grains in RF Plasma Sheaths,
Nano-Micro Gadgets 2005 Mini Conference, 15 Sept., Santa Fe, NM, USA.
- [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.
- [4] Experiments with Dust Grains in RF Plasmas,
Los Alamos National Laboratory Plasma Physics Seminar, 15 June 2005, USA.
- [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.
- [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.
- [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.

12.09.2019