

## CURRICULUM VITAE

FIRST NAME: **Mihai**  
NAME: **MACOVEI**  
DATE & BIRTHPLACE **24.11.1972**  
**Republic of Moldova**  
FAMILY: **married, two kids**  
E-MAIL: **macovei@phys.asm.md;**  
**mmakovei@yahoo.com**  
PHONE: **+373 22 72 32 52**



### ➤ FIELDS OF INTEREST:

- Collective Phenomena in Quantum Optics, Atomic Optics & Nano-Solid-State Media
- Quantum Coherences & Quantum Interferences & Quantum Lithography
- Multi-Particle Entanglement
- Quantum Control of Light and Matter
- Control & Manipulation of Decoherences in Quantum Systems
- Nano-Photonics
- Cooling phenomena
- Non-classical States of Light and Matter
- Cavity Quantum Electrodynamics & Quantum Circuits

### ➤ STUDIES

- 1990 - 1995: Student at the Physics Department, Moldova State University, Chişinău, MOLDOVA
- 1995 - 1998: Post - graduate studies, Institute of Applied Physics, Academy of Sciences of Moldova, Chişinău, MOLDOVA

### ➤ DEGREE

- 1999: Doctor in Physical and Mathematical Sciences:  
*Collective two-photon effects in free space and optical cavities*  
Institute of Applied Physics, Academy of Sciences of Moldova, Chişinău, MOLDOVA
- 2013: Habilitation in Physical and Mathematical Sciences  
*Quantum correlations and interference in multiparticle systems*  
Institute of Applied Physics, Academy of Sciences of Moldova, Chişinău, Republic of Moldova
- 2013: Research Associate Professor  
Institute of Applied Physics, Academy of Sciences of Moldova, Chişinău, MOLDOVA

➤ **POSITIONS**

- 2000-2007: Senior Lecturer,  
Physics Department, Technical University of Moldova,  
Chişinău, MOLDOVA
- 2007-2012: Researcher,  
Max Planck Institute for Nuclear Physics,  
Heidelberg, GERMANY [<https://www.mpi-hd.mpg.de/keitel/>]
- 2012 -2013: Researcher coordinator,  
Institute of Applied Physics, Academy of Sciences of Moldova,  
Chişinău, MOLDOVA
- 2013 -present: Principal Investigator,  
Institute of Applied Physics, Academy of Sciences of Moldova,  
Chişinău, MOLDOVA
- 2015: Head of Theory Lab *Quantum Photonics*
- 2015-present: Director of the Institute of Applied Physics [[www.phys.asm.md](http://www.phys.asm.md)]  
Chişinău, MOLDOVA

➤ **FELLOWSHIPS**

- 2002 - 2003: Alexander von Humboldt Research Fellowship,  
University of Freiburg,  
Freiburg, GERMANY
- 2004 - 2007 Max-Planck Research Fellowship  
Max-Planck-Institute for Nuclear Physics,  
Heidelberg, GERMANY [<https://www.mpi-hd.mpg.de/keitel/>]

➤ **MEMBERSHIPS**

- Since 2018: member of the Optical Society of America (OSA)

➤ **GRANTS**

- 2013-2015: *Control of the quantum dynamics of a collection of artificial atoms*  
(joint project between German Federal Ministry of Education and  
Research and the Academy of Sciences of Moldova, Project leader).
- 2015-2019: *Quantum Coherences and Nano-photonics* (Project director). Institutional  
Project.
- 2016 Mobility project of the Romanian National Authority for Scientific  
Research and Innovation [14-18.11.2016, Bucharest, Romania].
- 2017: Humboldt Kolleg “*Multidisciplinarity in Modern Science for the Benefit  
of Society*” grant received from Alexander von Humboldt Foundation  
[[www.avh.de](http://www.avh.de)].

➤ **AWARDS**

- 2013: Institute of Applied Physics Research Award for 2013
- 2014: Academy of Sciences of Moldova Research Award
- 2016: Physics Letters A’s *Certificate of Outstanding Contributing in Reviewing*
- 2018: First Degree Diploma of Government of Moldova for scientific activities

➤ **PhD student/thesis supervision**

- “*The dynamic of nanomechanical resonator coupled with a coherent light pumped quantum dot*” by **Sergiu Carlig**, successfully defended on June 29, 2018.

➤ **REFEREEING**

Acting as a referee for International Research Journals ( Phys. Rev. A, Phys. Rev. B, JOSA B, Optics Express, Optics Letters, Chinese Optics Letters, EPJ, etc.)

➤ **LIST OF PUBLICATIONS**

*INTERNATIONAL JOURNAL PUBLICATIONS:*

1. N. A. Enaki, M. A. Macovei “*Cooperative emission in the process of cascade and dipole-forbidden transitions*” Phys. Rev. A **56**, 3274 - 3286 (1997).
2. N. A. Enaki, M. A. Macovei, D. Mihalache “*Cooperative two-photon interaction with nonclassical light*” Physica A **258**, 383-395 (1998).
3. N. A. Enaki., M. A. Macovei “*Amplitude-squared squeezing in two-photon resonance fluorescence*” Optics Communications **157**, 291-302 (1998).
4. N. A. Enaki, M. A. Macovei “*Two-photon cooperative decay in a cavity in the presence of a thermalized electromagnetic field*” Journal of Experimental and Theoretical Physics **88**, 633-641 (1999) [Zh. Eksp. Teor. Fiz. **115**, 1153-1167 (1999)].
5. N. A. Enaki, M. A. Macovei “*Resonance two-photon interaction of radiators with broadband squeezed field*” J. Phys. B: At. Mol. Opt. Phys. **33**, 2163-2179 (2000).
6. M. Macovei, C. H. Keitel “*Laser Control of Collective Spontaneous Emission*” Phys. Rev. Lett. **91**, 123601 (2003).
7. P. I. Bardetski and M. A. Macovei “*Cavity Steady-State Behaviors for a Single Equidistant Three-Level Emitter*” Physica Scripta **67**, 306-313 (2003).
8. M. Macovei, J. Evers, C. H. Keitel “*Phase Control of Collective Quantum Dynamics*” Phys. Rev. Lett. **91**, 233601 (2003).
9. M. A. Macovei, J. Evers “*Phase dependence of collective fluorescence via interferences from incoherent pumping*” Optics Communications **240**, 379-384 (2004).
10. M. Macovei, J. Evers, C. H. Keitel “*Magnetic and thermal influences on collective resonance fluorescence*” Europhysics Letters **68** (3), 391-397 (2004).
11. M. Macovei, J. Evers, C. H. Keitel “*Coherent manipulation of collective three-level systems*” Phys. Rev. A **71**, 033802 (2005).
12. M. Macovei, C. H. Keitel “*Rapid refractive index enhancements via laser-mediated collectivity*” J. Phys. B: At. Mol. Opt. Phys. **38**, L315-L321 (2005).
13. M. Macovei, J. Evers, C. H. Keitel “*Quantum correlations of an atomic ensemble via an incoherent bath*” Phys. Rev. A **72**, 063809 (2005).
14. J. Evers, M. Kiffner, M. Macovei, C. H. Keitel “*Geometry-dependent dynamics of two Lambda-type atoms via vacuum-induced coherences*” Phys. Rev. A **73**, 023804 (2006).
15. M. D. Col, M. Macovei, and C. H. Keitel “*Controlling multiparticle correlations with a strong laser field*” Optics Communications **264**, 407-412 (2006). (Special issue on Quantum Control of Light and Matter).
16. M. Macovei, Z. Ficek, C. H. Keitel “*Collective coherent population trapping in a thermal field*” Phys. Rev. A **73**, 063821(2006).
17. M. A. Macovei “*Enhancing the superfluorescence via decay interference*” Jr. Phys. B: At. Mol. Opt. Phys. **40**, 387-392 (2007).
18. M. Macovei, J. Evers, G.-x. Li, C. H. Keitel “*Strong-Field Spatial Interference in a Tailored Electromagnetic Bath*” Phys. Rev. Lett. **98**, 043602 (2007).

19. M. Macovei, J. Evers, C. H. Keitel, M. S. Zubairy "Localization of atomic ensembles via superfluorescence" Phys. Rev. A **75**, 033801 (2007).
20. M. A. Macovei "Quantum tunneling through potentials induced by vacuum-multiparticle interactions" Phys. Rev. A **75**, 043803 (2007).
21. M. Macovei, C. H. Keitel "Superbunched photons via a strongly pumped near-equispaced multiparticle system" Phys. Rev. B **75**, 245325 (2007).
22. M. Macovei, G.-x. Li "Entangled light via nonlinear vacuum-multiparticle interactions" Phys. Rev. A **76**, 023818 (2007).
23. G.-x. Li, H.-t. Tan, M. Macovei "Enhancement of entanglement for two-mode field generated from four-wave mixing with the help of the auxiliary atomic transition" Phys. Rev. A **76**, 053827 (2007).
24. G. Yu. Kryuchkian, M. Macovei, and C. H. Keitel "Spatially entangled atomic deflections in twin-photon light beams" Phys. Rev. A **77**, 035603, (2008).
25. K. Xia, M. Macovei, J. Evers, and C. H. Keitel "Robust coherent preparation of entangled states of two coupled flux qubits via dynamic control of the transition frequencies" Phys. Rev. B **79**, 024519 (2009).
26. M. Macovei, Y. Niu, Sh. Gong and C. H. Keitel "Correlated atomic population fluctuations via the environmental reservoir" Jr. of Modern Optics **56** (6), 704 (2009). (Special Issue: Quantum Control of Matter and Light).
27. M. Macovei, X.-T. Xie "Two-photon cooling of a nonlinear quantum oscillator", Optics Communications **282**, 3930 (2009).
28. X.-T. Xie, M. Macovei, M. Kiffner, C. H. Keitel "Probing quantum superposition states with few-cycle laser pulses" J. Opt. Soc. Am. B **26**(10), 1912 (2009).
29. L. L. Jin, M. Macovei, S. Q. Gong, C. H. Keitel, J. Evers "Squeezing in strong light scattered by a regular structure of atoms" Optics Communications **283**, 790-794 (2010). (Special Issue dedicated to the memory of Prof. Krzysztof Wodkiewicz).
30. M. A. Macovei, J. Evers "Loading atom lasers by collectivity-enhanced optical pumping" Phys. Rev. A **81**, 013626 (2010). (see also PRA Kaleidoscope Images: January 2010)
31. X.-T. Xie, M. A. Macovei "Single-Cycle Gap Soliton in a Subwavelength Structure" Phys. Rev. Lett. **104**, 073902 (2010).
32. M. A. Macovei "Cooling a quantum circuit via coupling to a multiqubit system" Phys. Rev. A **81**, 043411 (2010).
33. M. Macovei, J. Evers, and C. H. Keitel "Quantum entanglement in dense multiqubit systems" Jr. of Modern Optics **57** (14&15), 1287-1292 (2010). (Special Issue dedicated to the memory of Prof. L. M. Narducci)
34. M. A. Macovei "Measuring photon-photon interactions via photon detection" Phys. Rev. A **82**, 063815 (2010).
35. L. Jin, J. Evers, M. Macovei "Photon scattering from strongly driven atomic ensembles" Phys. Rev. A **84**, 043812 (2011).
36. K. Xia., M. Macovei, J. Evers "Stationary entanglement in strongly coupled qubits" Phys. Rev. B **84**, 184510 (2011).
37. C. Mueller, M. A. Macovei, A. B. Voitkiv "Collectively enhanced resonant photoionization in a multiatom ensemble" Phys. Rev. A **84**, 055401 (2011).
38. N. Cui, M. Macovei, K. Z. Hatsagortsyan, and C. H. Keitel "Manipulating the annihilation dynamics of positronium via collective radiation" Phys. Rev. Lett. **108**, 243401 (2012).
39. N. Cui, M. A. Macovei "Carrier-envelope phase dependence in single-cycle laser pulse propagation with the inclusion of counter-rotating terms" New Journal of Physics **14**, 093031 (2012).
40. F. Oster, C. H. Keitel and M. Macovei "Generation of correlated photon pairs in different frequency ranges" Phys. Rev. A **85**, 063814 (2012).
41. N. Cui, C. H. Keitel, M. Macovei "Interference-induced peak splitting in EUV superfluorescence" Optics Letters **38**, 570-572 (2013).
42. B. Mohan, M. A. Macovei "Incoherent excitation of few-level multiatom ensembles" Jr. of Phys. B: At. Mol. Opt. Phys. **46**, 035503 (2013).

43. M. A. Macovei “*Optical force acting on strongly driven atoms in free space or modified reservoirs*” *Jr. of Phys. B: At. Mol. Opt. Phys.* **46**, 045502 (2013).
44. X.-T. Xie, V. Ciornea, M. Macovei “*Two-photon quantum dynamics in a nonlinear micromaser*” *Proceedings of the Romanian Academy, Series A* **14(1)**, 48-55 (2013).
45. V. Ciornea, P. Bardetski, M. A. Macovei “*Enhanced photon correlations due to strong laser-atom-cavity coupling*” *Phys. Rev. A* **88**, 023851 (2013).
46. V. Ciornea, P. Bardetski, M. A. Macovei “*Detuning-dependent dynamics of microcavity photon-statistics*” *Romanian Reports in Physics* **65(3)**, 1006-1011 (2013). (Dedicated to Professor Valentin I. Vlad’s 70th Anniversary).
47. S. Das, M. A. Macovei “*Collective quantum dot inversion and amplification of photon and phonon waves*” *Phys. Rev. B* **88**, 125306 (2013).
48. M. Cerbu, M. A. Macovei, G.-x. Li “*Cooling a two-level emitter in photonic-crystal environments*” *Phys. Rev. A* **89**, 013837 (2014).
49. S. Carlig, M. A. Macovei “*Quantum correlations among optical and vibrational quanta*” *Phys. Rev. A* **89**, 053803 (2014).
50. S. Carlig, M. A. Macovei “*Long-time correlated quantum dynamics of phonon cooling*” *Phys. Rev. A* **90**, 013817 (2014).
51. V. Ciornea, M. A. Macovei “*Cavity-output-field control via interference effects*” *Phys. Rev. A* **90**, 043837 (2014).
52. M. Macovei, C. H. Keitel “*Quantum dynamics of a two-level emitter with a modulated transition frequency*” *Phys. Rev. A* **90**, 043838 (2014).
53. V. Ciornea, P. Bardetski, M. A. Macovei “*Time-dependent highly correlated photons*” *Optics Commun.* **343**, 121 (2015).
54. M. Macovei, M. Mishra, C. H. Keitel “*Population inversion in two-level systems possessing permanent dipoles*” *Phys. Rev. A* **92**, 013846 (2015).
55. V. Ceban, M. A. Macovei “*Sub-Poissonian phonon statistics in an acoustical resonator coupled to a pumped two-level emitter*” *Journal of Experimental and Theoretical Physics* **121(5)**, 793-798 (2015).
56. V. Ceban, M. A. Macovei “*Cavity quantum interferences with three-level atoms*” *J. Opt. Soc. Am. B* **33(5)**, 942-946 (2016).
57. V. Ciornea, P. Bardetski, M. A. Macovei “*Phase Dependence of the Unnormalized Second-Order Photon Correlation Function*” *Journal of Experimental and Theoretical Physics* **123(4)**, 582-586 (2016).
58. V. Ceban, P. Longo, M. A. Macovei “*Fast phonon dynamics of a nanomechanical oscillator due to cooperative effects*” *Phys. Rev. A* **95**, 023806 (2017).
59. S. Carlig, M. A. Macovei “*Enhanced vibrational quantum dynamics beyond the rotating wave approximation*”, *JETP Letters* **105(8)**, 526-530 (2017).
60. L. Jin, J. Evers, M. A. Macovei “*Collective dynamics in a laser-pumped mixture of two atomic ensembles*” *J. Opt. Soc. Am. B* **34(6)**, 1280-1285 (2017).
61. N. Cui, M. A. Macovei, “*Amplifying ultraweak transitions in collective systems via quantum interference*” *Phys. Rev. A* **96**, 063814 (2017).
62. V. Ceban, M. A. Macovei, “*Enhanced cooling for stronger qubit-phonon couplings*” *Rom. Rep. Phys.* **70**, 407 (2018).
63. E. Cecoi, V. Ciornea, A. Isar, M. A. Macovei, “*Entanglement of a laser-driven pair of two-level qubits via its phonon environment*” *J. Opt. Soc. Am. B* **35(5)**, 1127-1132 (2018).
64. A. Mirzac, M. A. Macovei “*Dynamics of a quantum oscillator coupled with a three-level  $\Lambda$ -type emitter*” *J. Opt. Soc. Am. B* **36(9)**, 2473-2480 (2019).
65. E. Cecoi, V. Ciornea, A. Isar, M. A. Macovei “*Entanglement versus cooling in the system of a driven pair of two-level qubits longitudinally coupled with a boson mode field*” (submitted, 2019).
66. M. Macovei, J. Evers, C. H. Keitel, “*Spontaneous decay processes in a classical strong low-frequency laser field*” (in preparation, 2019).

#### REVIEW ARTICLES:

67. M. Kiffner, M. Macovei, J. Evers, C. H. Keitel, "Vacuum-induced processes in multi-level atoms" *Progress in Optics* **55**, 85-197 (2010).

#### BOOK CONTRIBUTION:

68. M. Macovei, J. Evers and C. H. Keitel "Strong-field spatial intensity-intensity correlations of light scattered from regular structures of atoms" in "Recent Research Topic and Developments in Chemical Physics: From Quantum Scale to Macroscale" 21-34 (2008) [ISBN: 978-81-7895-316-8]. Editors: Andreas F. Terzis and Emmanuel Paspalakis.
69. M. Macovei, G. Yu. Kryuchkyan, G.-X. Li "Entangled light and matter waves via non-linear interactions" in *Modern Optics and Photonics* [World Scientific, ISBN-13 978-981-4313-26-1; ISBN-10 981-4313-26-2], pp. 32-47 (2010).
70. S. Cârlig, V. Ciornea, M. A. Macovei "Corelații cuantice în sistemele cooperative" [CEP USM 2016]. In: *Progrese în Fizica Teoretică*, pp. 146. Editors: Valeriu Canțer, Florentin Paladi, Denis Nica.

#### NATIONAL JOURNAL PUBLICATIONS:

71. M. A. Macovei "Correlation between the Photon Pairs" *Surface Engineering and Applied Electrochemistry* **5-6**, 85-87 (1998) [in russian].
72. V. Ciornea, P. Bardetschi, M. Macovei "Slowing of the collective spontaneous emission due to quantum interference effects" *Fizica si Tehnica* **2**, 11-18 (2006) [in romanian].
73. S. Carlig, M. A. Macovei "Interferența luminii împrăștiată de două puncte cuantice / Light interference scattered from a quantum dot pair" *Akademos* Nr. 1 (32), pp. 51- 53 (2014).
74. S. Carlig, V. Ceban, M. A. Macovei "Sistemele optomecanice – puntea între nano și macrolume" *Akademos* Nr. 4 (39), pp. 21-27 (2015).
75. V. Ceban, M. A. Macovei "Quantum dynamics of acoustical phonon statistics" *Fizică și Tehnică: Procese, modele, experimente*, nr. **2**, 18-22 (2015). UDC: 621.375.826
76. S. Carlig, M. A. Macovei "Dinamica rezonatorului nanomecanic cuantificat, cuplat cu un sistem de atomi artificiali" *Akademos* Nr. 2 (45), pp. 33-35 (2017).
77. M. A. Macovei "Multidisciplinaritatea în știința modernă pentru beneficiul societății" *Akademos* Nr. 3 (46), pp. 10 (2017).
78. A. V. Mirzac, V. Ciornea, M. A. Macovei "Non-classical light scattered by laser-pumped molecules possessing permanent dipoles", *Mold. J. Phys. Sci.* **17(1-2)**, 95-104 (2018).
79. V. Ciornea, E. Cecoi, M. A. Macovei "Diminuarea intensității câmpului fluorescent a doi qubiți pompați laser", *Akademos* Nr. 4 (51), pp. 28-31 (2018).
80. P. Bardetschi, M. A. Macovei "Efectul cuantic dimensional", *Fizica si Tehnologiile Moderne*, vol. **17**, nr. 1-2 (65-66), 23 (2019).

#### VIEWPOINT:

81. M. A. Macovei "Matter Waves and Quantum Correlations" *Physics* **5**, 70 (2012).

#### PUBLICATIONS IN CONFERENCES PROCEEDINGS:

1. M. Macovei and N. Enaki " Possibility of two-photon superradiance in microcavities" *Proc. SPIE Int. Soc. Opt. Eng.* 3405, 399-405 (1998).
2. N Enachi, M. Macovei "Cooperative gamma-ray generation stimulated by X-ray pulse" *Proceedings of the First International Induced Gamma Emission Workshop'97*, IGE Foundation, Bucharest, Romania, 603-614 (1999).
3. N. A. Enaki, M. A. Macovei "Nonlinear two-photon interaction of radiators with broadband squeezed vacuum" *AIP Conf. Proc.* 519, 635-641 (2000).
4. N. A. Enaki, M. Macovei "Thermal stimulation of cooperative two-photon decay in a microcavity" *Proc. SPIE Int. Soc. Opt. Eng.* 4417, 335-338 (2001).

5. P. Bardetschi and M. Macovei "Sub-natural spectral lines via quantum interferences" Proceedings of the 4th International Conference on "Microelectronics and Computer Science" 120-123 (Volume 1), Chisinau, Moldova (2005).
6. J. Evers, U. D. Jentschura, M. Macovei, C. H. Keitel "Vacuum-mediated incoherent processes in coherently prepared media" Proc. SPIE Int. Soc. Opt. Eng. 5842, 241-256 (2005).
7. M. Macovei, P. Bardetschi "Photon entanglement via incoherent pumping" Conferinta Nationala de Telecomunicatii /Electronica si Informatica - UTM/ p.147-150, Chisinau, Moldova (2006).
8. J. Evers, M. Mahmoudi, and M. Macovei "Quantum interference in light scattering and propagation" Proc. SPIE 6603, 66031F (2007).
9. M. Macovei, J. Evers, M. S. Zubairy "Localization of a small collection of fluorescing atoms" Proc. SPIE 6603, 66032C (2007).
10. L. Jin, M. Macovei, J. Evers "Photon scattering from a strongly driven multi-atom system: second-order correlations and squeezing" Chinese Optics Letters COL10(supl.), S22701 (2012).
11. P. Bardetschi, V. Ciornea, M. Macovei "Nonlinear cooling of a quantum microcircuit". In Proceedings of the International Telecommunications, Electronics and Informatics, ICTEI-2012, v1, pp. 112-114, Chişinău, May 17-20.
12. V. Ciornea, P. Bardetschi, M. A. Macovei "Cavity Field Suppression via Interference Effects" In Proceedings of the 3rd International Conference on Nanotechnologies and Biomedical Engineering: September 23-26, 2015, Chisinau, Moldova [IFMBE Proceedings v55(2), 127-130 (2016, Springer)].
13. P. Bardetschi, V. Chistol, M. A. Macovei "Auto-acţiunea microparticulelor" In Fizica și Tehnologiile Moderne, Materialele Colocviului Internațional Evrika, pp. 66-70, August 25-27 (2016).
14. V. Ceban, M. Macovei "The quantum dynamics of a nanomechanical resonator coupled to two quantum dots" In Proceedings of the 9<sup>th</sup> International Conference of "Microelectronics and Computer Science" pp. 37-40, October 19-21, 2017, Chisinau, Moldova.
15. A. Mirzac, V. Ciornea, M. A. Macovei "Quantum light features scattered by pumped two-level systems with permanent dipoles" In Proceedings of "The 6<sup>th</sup> International Conference on Telecommunications, Electronics and Informatics" pp. 89-91, 24-27 May 2018, Chisinau, Moldova.
16. E. Cecoi, V. Ciornea, M. A. Macovei "Phonon assisted two-qubit subradiant state preparation" In Proceedings of "The 6<sup>th</sup> International Conference on Telecommunications, Electronics and Informatics" pp. 122-123, 24-27 May 2018, Chisinau, Moldova.

## TALKS

### a) invited

1. M. Macovei "Quantum dynamics of interacting atomiclike and optomechanical systems via cooperativity" Institutul Național de Cercetare Dezvoltare pentru Fizică și Inginerie Nucleară Horia Hulubei, 23 Mai 2019, București, România (45min).
2. M. Macovei "Enhancing ultraslow transitions in cooperatively interacting multi-atom samples" 9th International Conference on Materials Science and Condensed Matter Physics, September 25-28, 2018, Chisinau, Moldova (30min).
3. M. Macovei, V. Ceban, V. Ciornea, C. H. Keitel "Quantum Interference Effects in Open Quantum Systems" EMN Meeting on Quantum Communication and Quantum Imaging, August 23-26/2016, Berlin, Germany (25min).
4. M. Macovei "Quantum Interferences and Correlations in Pumped Few-Level Systems" Institutul Național de Cercetare Dezvoltare pentru Fizică și Inginerie Nucleară Horia Hulubei, 2016 București, România (45min).
5. M. Macovei, S. Das, S. Carlig, V. Ciornea, P. Bardetschi, "Quantum correlations with artificial atomic systems" 7th International Conference on Materials Science and Condensed Matter Physics, September 16-19 (2014), Chisinau, Moldova (25min).

6. M. Macovei, N. Cui, F. Oster, K. Z. Hatsagortsyan, C. H. Keitel "Multi-atom effects in laser fields" ROMOPTO 2012, September 3-6, Bucharest, Romania (30min).
7. M. Macovei, X.-T. Xie, M. Kiffner, C. H. Keitel, "Single-cycle quantum dynamics induced by an ultra-short laser pulse" 19th International Laser Physics Workshop (LPHYS'10), July 05 - 09, 2010 Foz do Iguacu, Brazil (35min).
8. M. Macovei, G. Y. Kryuchkyan, G.-x. Li, C. H. Keitel, "Entangled light and matter waves via nonlinear interactions" Modern Problems in Optics & Photonics, August 27 - September 2, 2009 Yerevan, Armenia (Plenary Talk, 40min).
9. M. Macovei, J. Evers and C. H. Keitel "Particle correlations in strongly pumped small-sized many-atom ensembles" Nanoscale Phenomena - Fundamentals and Applications: NANO-2007, September 20-22 /2007/ Chisinau, Moldova (15min).
10. M. Macovei, J. Evers, G.-x. Li and C. H. Keitel "Strong-field spatial quantum interference in a tailored electromagnetic reservoir" Frontiers of Nonlinear Physics, July 3-9 /2007/ Nizhny Novgorod, Russia (30 min).
11. M. Macovei, J. Evers, C. H. Keitel, M. S. Zubairy "Localization of a small collection of fluorescing atoms" SPIE Fluctuations and Noise, 20-24 May /2007/ Florence, Italy (20 min).
12. M. Macovei "Multi-Particle Dark and Bright States" Huazhong Normal University, Wuhan, China (60 min, April 02 - 20 / 2007).
13. M. Macovei "Photon Statistics and Interference in Multi-Particle Extended Systems" Huazhong Normal University, Wuhan, China (60 min, April 02 - 20 / 2007).
14. M. Macovei, J. Evers and C. H. Keitel "Enhanced Optical Response in Multi-Atom Ensembles" Proceedings of 2nd International Conference on Current Developments in Atomic, Molecular & Optical Physics with Applications, March 21-23/2006/ New Delhi, India (30 min).

#### b) regular

15. A. Mirzac, V. Ciornea, M. A. Macovei "Quantum light features scattered by pumped two-level systems with permanent dipoles" The 6<sup>th</sup> International Conference on Telecommunications, Electronics and Informatics, 24-27 May 2018, Chisinau, Moldova (15min).
16. M. Macovei "Thermostat influence on certain quantum systems" 4<sup>th</sup> Central and Eastern European Conference on Thermal Analysis and Calorimetry, 28-31 August 2017, Chisinau, Moldova (20min).
17. M. Macovei "Corelații cuantice în sistemele moleculare artificiale sau reale" Departamentul de Fizică Teoretică al Facultății de Fizică, Universitatea din București, 16.11.2016, București, România (40min).
18. M. Macovei "Quantum Coherences in Cooperative Systems" 8th International Conference on Materials Science and Condensed Matter Physics, September 13-15 (2016), Chisinau, Moldova (15min).
19. M. Macovei "Cavity quantum dynamics with pumped few-level emitters" Science and Society: the use of light, Humboldt Kolleg September 24-25, Chișinău, Moldova 2015 (20 min).
20. V. Ciornea, P. Bardetski, M. A. Macovei "Cavity field suppression via interference effects" 3rd International Conference on Nanotechnologies and Biomedical Engineering, Chișinău 23-25 September 2015, Moldova (15min).
21. M. Macovei, C. H. Keitel "Spontaneous emission inhibition via transition frequency modulation" Spring meeting of the DPG, Heidelberg 23 - 27.03.2015, Germany (15 min).
22. M. Macovei, F. Oster, C. H. Keitel "Generation of correlated photon pairs in different frequency ranges" Spring meeting of the DPG, Stuttgart 12 - 16.03.2012, Germany (15 min).
23. M. Macovei, J. Evers, C. H. Keitel "Quantum entanglement in dense multiparticle samples" Spring meeting of the DPG, Hannover 08 - 12.03.2010, Germany (15 min).
24. M. Macovei, X.-T. Xie, M. Kiffner, and C. H. Keitel "Phase dependent quantum dynamics induced by ultrashort laser pulses" CEWQO 2008, Belgrade (Serbia), 30 May - 03 June 2008 (20 min).
25. M. Macovei, J. Evers, and C. H. Keitel "Light interference and localization of strongly driven multiparticle systems" CEWQO 2007, Palermo/Italy, 1-5 June 2007 (20 min).



26. M. Macovei "Resonant quantum tunneling via vacuum-multiparticle interactions" Spring meeting of the DPG, Dusseldorf/Germany 19 - 23.03.2007 (15 min).
27. M. Macovei, J. Evers and C. H. Keitel "Quantum correlations between photons scattered by strongly pumped regular structures" Spring meeting of the DPG, Dusseldorf/Germany 19 - 23.03.2007 (15 min).
28. M. Macovei, C. H. Keitel "Large refractive indices in collective atomic systems" Spring meeting of the DPG, Frankfurt/Germany 13 - 17.03.2006 (15 min).
29. M. Macovei "Control of collective quantum dynamics with moderately intense laser-fields" Max Planck Institute for Nuclear Physics, Heidelberg/Germany 21.04.2005 (45 min).
30. M. Macovei, J. Evers and C. H. Keitel "Control Schemes for Collective Resonance Fluorescence" Spring meeting of the DPG, Berlin/Germany 04 - 09.03.2005 (15 min).
31. M. Macovei, J. Evers and C. H. Keitel "Strong Field Control of Collective Quantum Dynamics " In Abstracts of "Frontiers in Optics" Conference - October 2004, Rochester, USA (15 min).
32. M. A. Macovei "Controlling of Collective Resonance Fluorescence" In Abstracts of 4th International Conference BiT+ "Technologies of the Information Society", Chisinau 2004, Moldova (15 min).

#### *POSTERS*

33. M Macovei, V. Ciornea, M. Cerbu, P. Bardetski "Quantum dynamics in collective quantum dot systems" Humboldt Kolleg & NANO-2013, 13-16 September 2013 (Chişinău, Moldova).
34. M. Macovei, Z. Ficek and C. H. Keitel "Disentanglement in collective coherent population trapping" ICAP, 16-21 July 2006 (Innsbruck, Austria).
35. M. Macovei, J. Evers, C. H. Keitel "Photon antibunching and superbunching via collectivity", Physikertagung der Deutschen Physikalischen Gesellschaft (DPG), Frankfurt/Germany 13-17.03.2006.
36. M. Macovei, J. Evers and C. H. Keitel "Laser-Control of Vacuum-Correlated Multi-Particle Quantum Dynamics" GRC Conference on Quantum Control of Light and Matter, 31 July - 05 August /2005/, Colby College in Waterville ME, USA.
37. M. Macovei and C. H. Keitel "Strong-Field Manipulation of Collective Two-Atom Interaction", Physikertagung der Deutschen Physikalischen Gesellschaft (DPG), Hannover/Germany, 03.2003.