

PERSONAL INFORMATION

**BRATU Ana-Maria**



**National Institute for Laser, Palsma and Radiation Physics,  
 Laser Department**

+40723340794

ana.magureanu@inflpr.ro

Sex Female Date of birth 05/03/1981 | Nationality Romanian

POSITION WITHIN THE PROJECT

**Researcher - member in the research team**

WORK EXPERIENCE

December 2005 -present

**Scientific Researcher 3<sup>rd</sup> degree**

National Institute for Laser, Palsma and Radiation Physics, Laser Department  
 409 Atomistilor St., Magurele, Romania, www.inflpr.ro

- CO<sub>2</sub> laser technology
  - biophotonics;
  - Applications of lasers in medicine and biology:
  - Interaction laser biological tissue,
  - ultrashort pulsed lasers with high intensities.
- administrative responsibilities:
- team member national research projects

Business or sector Researche

EDUCATION AND TRAINING

2007-2011

**Doctor in Applied Physics**

Replace with EQF (or other) level if relevant

Faculty of Applied Sciences, University Politehnica of Bucharest

October 2005 - February 2007

Master in Biophysics and Medical Physics  
 Faculty of Physics, University of Bucharest

October 2000 - July 2004

Bachelor's degree in Medical Physics  
 Faculty of Physics, University of Bucharest

PERSONAL SKILLS

Mother tongue(s) Romanian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2
Replace with name of language certificate. Enter level if known.					
French	B1	B1	A2	A2	A1

Replace with name of language certificate. Enter level if known.

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user  
[Common European Framework of Reference for Languages](#)

**Communication skills** Replace with your communication skills. Specify in what context they were acquired.  
 Example:  
 ▪ good communication skills gained through my experience as sales manager

**Organisational / managerial skills**

- Member in the team organization of international conferences
- Advanced Laser Technology, ALT06, 8-12 September 2006, Brasov, Romania;
- - International Conference on Ultra-High Intensity Lasers, ICUIL 2012, 16-21 September 2012, Mamaia, Romania.

**Job-related skills**

- The ability to participate in activities that require thorough knowledge of methods of analysis and synthesis, and use their skills;
- Skills in drafting proposals for research projects and coordination of their work packages
- Skills in writing scientific papers;
- Mentoring skills trainee research assistants, master practitioners etc.

Specific specialist knowledge:

- Knowledge Strategy R & D institute in the field of work and identify priority research directions and perspectives in this field;
- Relevant experience in the study of laser beam interaction with biological tissue;
- Advanced experience in IR absorption spectroscopy;
- Experience in development of experimental setups circuits, electrical / electronic and optical devices

**Digital competence**

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Enter level	Enter level	Enter level	Enter level	Enter level

Levels: Basic user - Independent user - Proficient user  
[Digital competences - Self-assessment grid](#)

Replace with name of language certificate. Enter level if known.

- Computer skills: Microsoft Office (Word, Excel, Power Point)
- abilitati use of various devices (video-projector, video-camera, camera etc.)(video-projector, video-camera, camera etc.)

**Other skills**

- responsibility
- initiative
- ability to work in team
- communication skills and relationship

**Driving licence** B

ADDITIONAL  
INFORMATION

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- Publications
  - Presentations
  - Projects
  - Conferences
  - Seminars
  - Honours and awards
  - Memberships
  - References
  - Citations
  - Courses
  - Certifications
- Author and co-author of 29 articles, two book chapters, one book
  - Example of publication:
    - National projects: 16 projects
    - Author and co-author of 63 presentations (invited lectures, oral presentations and posters)
  - 50 citations (without selfcitations)

## Publications (ISI)

1. A. M. Bratu, M. Petrus, C. Popa, Laser-based spectrometer for optical trace gas detection in young adults with autism, *Microchemical Journal* 138: 203-208 (2018).
2. C. Popa, M. Petrus, **A. M. Bratu**, M. Patachia, S. Banita, Photoacoustic response of cherry tomatoes contaminated with car engines pollution and UV radiation, *Optoelectronics and Advanced Materials – Rapid Communications* vol. 11, iss. 3-4 (2017).
3. M. Petrus, **A.M. Bratu**, C. Popa, Spectroscopic study of dietary effects on volatile breath biomarkers, *Rom. Rep. Phys.* (2017).
4. M. Petrus, **A.M. Bratu**, C. Popa, Spectroscopic analysis of breath ethylene and oxidative stress relation with glycaemic status in type 2 diabetes, *Opt Quant Electron* 49:2, DOI 10.1007/s11082-016-0837-y (IF = 1.290, AIS = 0.200) (2017).
5. I.R. Ivascu, C.E. Matei, M. Patachia, **A.M. Bratu**, D.C. Dumitras, CO<sub>2</sub> laser photoacoustic measurements of ethanol absorption coefficients within infrared region of 9.2–10.8 μm, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 163 :115–119, (2016).
6. M. Petrus, **A.M. Bratu**, C. Popa, The response of human body at oxidative stress in subjects with type 2 diabetes: ammonia breath analysis by laser photoacoustic spectroscopy, *Rev. Roum. Chim.*, 61(2): 83-87 (IF = 0.250, AIS = 0.080) (2016).
7. M. Petrus, **A. Bratu**, Breath ammonia detection in patients with schizophrenia using laser photoacoustic spectroscopy, *Romanian Reports in Physics*, 68(3) (IF = 1.367, AIS = 0.210) (2016).
8. I.R. Ivascu, C.E. Matei, M. Patachia, **A.M. Bratu**, D.C. Dumitras, Multicomponent detection in photoacoustic spectroscopy applied to pollutants in the environmental air, *Rom. Rep. Phys*, 67(4): 1558-1564, (2015).
9. I.R. Ivascu, C.E. Matei, M. Patachia, **A.M. Bratu**, D.C. Dumitras, Photoacoustic measurements of the CO<sub>2</sub> absorption coefficients within infrared region of CO<sub>2</sub> laser spectrum, *Rom. Journ.Phys*, 60(7-8): 1121-1131, (2015).
10. C. Popa, M. Petrus, **A.M. Bratu**, Ammonia and ethylene biomarkers in the respiration of people with schizophrenia using photoacoustic spectroscopy, *Journal of Biomedical Optics*, 20(5), Article No. 057006 (2015).
11. C. Popa, M.Petrus, **A.M. Bratu**, Photoacoustic spectroscopy for non-invasive analysis of human respiration, *Rom. Rep. Phys*, 67(4):1537-1544 (IF = 1.517) (2015).
12. M.Petrus, **A.M. Bratu**, D. Serbanescu, Laser spectroscopy method for non-invasive analysis of breath in pulmonary disease, *Rom. Rep. Phys*, 67(4):1545-1557 (2015).
13. C. Popa, S. Banita, M. Patachia, C. Matei, **A.M. Bratu**, M. Patachia, M. Petrus, D.C. Dumitras, CO<sub>2</sub> laser-photoacoustic study of exhaled breath produced by electronic vs. traditional cigarettes, *Rom. Rep. Phys*, 67(3):946-953 (IF = 1.517) (2015).
14. M. Petrus, **A.M. Bratu**, C. Popa, Spectroscopic analysis of surgical smoke produced in vitro by laser vaporization of animal tissues in a closed gaseous environment, *Rom. Rep. Phys*, 67(3): 954 - 965 (2015). (IF = 1.517)
15. **A.M. Bratu**, M. Petrus, M. Patachia, C. Matei, C. Popa, S. Banita, D.C. Dumitras, Quantitative analysis of laser surgical smoke: targeted study on six toxic compounds, *Romanian Journal of Physics*, 60(1-2):215-227 (2015).
16. C. Popa, **A. M. Bratu**, D. C. Dumitras, M. Pațachia, and Ș Băniță, Photoacoustic detection of ethylene concentration in cherry tomatoes, *Journal of Optoelectronics and Advanced Materials*, Vol. 16, No. 1-2, pp. 82-86 (2014).
17. Ș Băniță, D. C. Dumitras, **A. M. Bratu**, M. Pațachia and C. Popa, Ethylene production of organic and nonorganic mature mushrooms measured by LPAS, *Rom. Rep. Phys.*, Vol. 66, No. 3, pp. 887-892 (2014).
18. **A.M. Bratu**, M. Petrus, M. Patachia, D.C. Dumitras, Carbon dioxide and waters detection from surgical smoke by laser photoacoustic spectroscopy, *University Politehnica of Bucharest, Scientific Bulletin-Series A-Applied Mathematics and Physics*, 75(2):139-146 (2013).
19. C. Popa, Ș. Băniță, **A. M. Bratu**, M. Pațachia, C. Matei, and D. C. Dumitras, The level of

- ethylene biomarker in renal failure of elderly patients analyzed by photoacoustic spectroscopy, *Laser Physics*, Vol. 23, No. 12, doi:10.1088/1054-660X/23/12/125701, Article ID 125701 (2013)
20. **A. M. Bratu**, C. Popa, C. Matei, Ș. Băniță, D. C. A. Duțu and D. C. Dumitraș, Removal of interfering gases in breath biomarker measurements, *Journal of Optoelectronics and Advanced Materials*, Vol. 13, No. 8, pp. 1045-1050 (2011)
21. C. Popa, **A. M. Bratu**, C. Matei, R. Cernat, A. Popescu and D. C. Dumitraș, Qualitative and quantitative determination of human biomarkers by laser photoacoustic spectroscopy methods, *Laser Physics*, Vol. 21, No. 7, pp. 1336-1342 (2011)
22. C. Popa, **A. M. Bratu**, R. Cernat, Ș. Băniță, D. C. A. Duțu and D. C. Dumitraș, Spectroscopic studies of ethylene and ammonia as biomarkers at patients with different medical disorders, *U. P. B. Sci. Bull., Series A*, Vol. 73, No. 2, pp. 167-174 (2011)
23. D.C. Dumitraș, D.C. Dutu, C. Matei, R. Cernat, S. Banita, M. Patachia, **A.M. Bratu**, M. Petrus, C. Popa, Evaluation of ammonia absorption coefficients by photoacoustic spectroscopy for detection of ammonia levels in human breath, *Laser Physics*, 21(4): 796-800 (2011).
24. C. Popa, D. C. A. Dutu, R. Cernat, C. Matei, A. M. Bratu, S. Banita, D. C. Dumitraș, Ethylene and ammonia traces measurements from the patients' breath with renal failure via LPAS method, *Applied Physics B*, 105, 3, pp 669–674, 2011
25. D.C. Dumitraș, S. Banita, **A.M. Bratu**, R. Cernat, D.C.A. Dutu, C. Matei, M. Patachia, M. Petrus, C. Popa, Ultrasensitive CO2 laser photoacoustic system, *Infrared Physics&Technology*, 53(5): 308-314 (2010).
26. R. Cernat, C. Matei, **A.M. Bratu**, C. Popa, D.C. A. Dutu, M. Patachia, M. Petrus, S. Banita, D.C. Dumitraș, Laser photoacoustic spectroscopy method for measurements of trace gas concentration from human breath, *Romanian Reports in Physics*, 62(3): 610-616 (2010).
27. D.C. Dumitraș, D.C. Dutu, C. Matei, **A.M. Magureanu**, M. Petrus, C. Popa, M. Patachia, Measurements of ethylene concentration by laser photoacoustic techniques with applications at breath analysis, *Romanian Reports in Physics*, 60(3): 593-602 (2008).
28. D.C. Dumitraș, D.C. Dutu, C. Matei, A.M. Magureanu, M. Petrus, C. Popa, Laser photoacoustic spectroscopy: principles, instrumentation, and characterization, *Journal of Optoelectronics and Advanced Materials*, 9(12): 3655-3701 (2007).
29. D. C. Dumitraș, D. C. Dutu, C. Matei, **A. M. Magureanu**, M. Petrus, and C. Popa, Improvement of a laser photoacoustic instrument for trace gas detection, *U. P. B. Sci. Bull., Series A*, Vol. 69, No. 3, pp. 45-56 (2007).

### **Publications (non-ISI)**

1. C. Popa (Achim), M. Bercu (Petrus), **A.M. Bratu** and D. C. Dumitraș, Impactul metalelor grele asupra plantelor, *Revista Stiinta & Tehnica*, Nr. 61 Noiembrie 2016.
2. M. Petrus (Bercu), **A.M. Bratu**, C. Popa (Achim), "Oxidative stress in diabetes: ammonia breath analysis by laser photoacoustic spectroscopy", *Recent Advances on Biomedical Sciences*, Series 9, Published by WSEAS Press, pp: 61-64, 2015. ISBN:978-1-6-61804-334-4, ISSN: 1790-5125.
3. C. Popa, M. Petrus, **A.M. Bratu**, "Biomedical applications of CO2 laser photoacoustic spectroscopy", *Recent Advances on Biomedical Sciences*, Series 9, Published by WSEAS Press, pp: 72-74, 2015. ISBN:978-1-6-61804-334-4, ISSN: 1790-5125.
4. C. Popa, **A.M. Bratu**, M. Petrus, S. Banita, M. Patachia, C. Matei, D.C. Dumitraș, "Efectele tigarilor electronice si traditionale asupra sanatatii", *Stiinta&Tehnica*, pp:046-049, nr.44, martie 2015.
5. S. Banita, M. Patachia, D.C. Dumitraș, C. Achim, M. Bercu, **A.M. Bratu**, C. Matei, Testing fruits quality by laser photoacoustic spectroscopy, *Recent Advances in Biology, Biomedicine and Bioengineering (3rd International Conference on Health Science and Biomedical System)*, ISSN 1709-5125, ISBN: 978-960-474-401-5 (2014)

6. Cristina Achim (Popa), Mihai Patachia, Stefan Băniță, **Ana Bratu**, Consuela Matei, Mioara Petrus, Dan C. Dumitraș, “Respirația în lungimi de undă”, Revista Stiinta & Tehnica, Nr. 27 iulie-august, pp:056-059, (2013).

### Book Chapters

1. **A. M. Bratu**, "CO2 Laser Photoacoustic Spectroscopy for Ultrasensitive Gas Detection", LAP LAMBERT Academic Publishing, 2014, ISBN 978-3-659-63546-5.
2. D. C. Dumitras, **A. M. Bratu** and C. Popa, “CO2 Laser Photoacoustic Spectroscopy: Principles”, Intech, Croatia (2012); Chapter I in “ CO2 Laser-Optimisation and Application”, ISBN 979-953-307-712-2, Ed. D. C. Dumitras
3. D. C. Dumitras, **A. M. Bratu** and C. Popa, “CO2 Laser Photoacoustic Spectroscopy: Instrumentation and Applications”, Intech, Croatia (2012); Chapter II in “ CO2 Laser-Optimisation and Application”, ISBN 979-953-307-712-2, Ed. D. C. Dumitras

### Conferences

1. **A. M. Bratu** (Magureanu), Analysis of exhaled ethylene in adults with autism, Laser Ignition Summer School (LISS), 19-22 July, 2017, Brasov, Romania.
2. **A. M. Bratu**, M. Petrus, C. Popa, Photoacoustic analysis in young adults with autism, IONS Balvanyos 2017 , 25-28 July, 2017, Transylvania, Romania.
3. C. Popa (Achim), M. Petrus (Bercu), **A. M. Bratu** (Magureanu), Detection of gaseous Molecules at plantlets, IONS Balvanyos 2017 , 25-28 July, 2017, Transylvania, Romania.
4. M. Bercu (Petrus), C. Achim (Popa), **A.M. Bratu**, C. Matei, M. Patachia, S. Banita and D.C. Dumitras, Spectroscopic analyses of breath ethylene in relation with glycaemic status in type 2 diabetes, IONS Balvanyos 2017 , 25-28 July, 2017, Transylvania, Romania.
5. M. Bercu (Petrus), C. Achim (Popa), **A.M. Bratu**, M. Patachia, S. Banita, C. Matei and D.C. Dumitras, Laser photoacoustic spectroscopy in evaluating the heavy metals metabolism in fruits by monitoring gaseous compounds, The Food Factor I Barcelona Conference, 02-04 November, 2016, Barcelona, Spain. (poster)
6. C. Achim (Popa), M. Bercu (Petrus), **A.M. Bratu**, C. Matei, S. Banita, M. Patachia, M. Stoica, S.C. Litescu, D.C. Dumitras, Heavy metals impact: effect on plants, The Food Factor I Barcelona Conference, 02-04 November, 2016, Barcelona, Spain. (oral presentation)
7. Laser spectroscopy method for non-invasive analysis of breath in subjects with pulmonary disease, M. Bercu (Petrus), C. Achim (Popa), **A.M. Bratu**, M. Patachia, S. Banita, C. Matei, and D.C. Dumitras, The 24<sup>th</sup> Annual International Conference on Advanced Laser Technologies ALT'16 Galway, Ireland, September 12–16, 2016. LDS-P-7 (poster).
8. Impact evaluation of heavy metals at contaminated plants and fruits using IR spectroscopy C. Achim (Popa), M. Bercu (Petrus), **A.M. Bratu**, C. Matei, M. Patachia, D.C. Dumitras, The 24<sup>th</sup> Annual International Conference on Advanced Laser Technologies ALT'16 Galway, Ireland, September 12–16, 2016. PA-P-3 (poster)
9. M. Petrus (Bercu), **A.M. Bratu**, C. Popa (Achim), “Chemotherapy and collateral damage: oxidative stress analysis by laser photoacoustic spectroscopy”, 11th International Conference "Micro- to Nano-Photonics IV- ROMOPTO 2015" September 1 - 4, 2015, Bucharest, Romania. Nr. Prezentare: O10 – oral.
10. M. Petrus (Bercu), **A.M. Bratu**, C. Popa (Achim), “Oxidative stress in diabetes: ammonia breath analysis by laser photoacoustic spectroscopy”, HSBS'15 4 th International Conference on Health Science and Biomedical Systems, Sliema, Malta 17-19 August 2015., nr. Prezentare 72708-115. -

invited

11. C. Popa, M. Petrus, **A.M. Bratu**, "Biomedical applications of CO<sub>2</sub> laser photoacoustic spectroscopy", HSBS'15 4<sup>th</sup> International Conference on Health Science and Biomedical Systems, Sliema, Malta 17-19 August 2015. - invited
12. M. Petrus (Bercu), **A.M. Bratu**, C. Popa (Achim), S. Banita, M. Patachia, C. Matei, D.C. Dumitras, "Spectroscopic analysis of humans breath in subjects with type 2 diabetes", International Conference ALT'15 Advanced Laser Technologie, Faro, Portugalia, 7-11 September 2015. Nr prezentare: D-O-1. - oral
13. C. Popa (Achim), **A.M. Bratu**, M. Petrus, M. Patachia, S. Banita, D.C. Dumitras, "Photoacoustic assessment of electronic versus traditional cigarettes on human health", 24<sup>th</sup> International Laser Physics Workshop, August 21-25, Shanghai, China. Sesiunea: S3.3 - invited
14. M. Petrus, C. Achim, **A.M. Bratu**, S. Banita, M. Patachia, C. Matei, D.C. Dumitras, "Spectroscopic analysis of the breath from subjects with type 2 diabetes", COLA 2015 – International Conference on Laser Ablation, 31 August-4 September 2015, Cairns, Australia. P-197 - poster
15. C. Popa, M. Petrus, **A.M. Bratu**, M. Patachia, S. Banita, C. Matei, D.C. Dumitras, "Laser spectroscopy for noninvasive gas monitoring in patients with dysfunctions", COLA 2015 – International Conference on Laser Ablation, 31 August-4 September 2015, Cairns, Australia. P-190 -poster
16. D.C. Dumitras, M. Petrus, **A.M. Bratu**, M. Patachia, S. Banita, C. Achim (Popa), "Non-invasive evaluation of breath biomarkers in oxidative stress using photoacoustic spectroscopy", International Conference ALT'15 Advanced Laser Technologie, Faro, Portugalia, 7-11 September 2015. Nr. Prezentare : D-I-10 -invited
17. S. Banita, M. Patachia, D.C. Dumitras, C. Achim, M. Bercu, **A.M. Bratu**, C. Matei, "The effect of air pollution and UV-B radiation on fruits using LPAS method", International Conference ALT'15 Advanced Laser Technologie, Faro, Portugalia, 7-11 September 2015. Nr prezentare :D-P-2. - poster
18. M. Patachia, S. Banita, C. Matei, M. Petrus, C. Achim, **A. Bratu**, D.C. Dumitras, "New optical imaging system for intraoperative detection of tumors margins", International Conference ALT'15 Advanced Laser Technologie, Faro, Portugalia, 7-11 September 2015. Nr prezentare : D-P-3. - poster
19. C. Popa (Achim), M. Petrus, **A.M. Bratu**, "Photoacoustic spectroscopy for non-invasive analysis of human respiration", 11<sup>th</sup> International Conference "Micro- to Nano-Photonics IV-ROMOPTO 2015" September 1 - 4, 2015, Bucharest, Romania. Nr. Prezentare: O6 -oral
20. Cristina Popa (Achim), Mioara Bercu, **Ana M. Bratu**, Consuela Matei, Mihai Pațachia, Ștefan Bănița, Dan C. Dumitraș "Evaluarea impactului poluării asupra vegetației contaminate folosind spectroscopia fotoacustică laser", Masa rotunda Editia IV- Tendinte actuale in exploatarea durabila a resurselor minerale, 20 Noiembrie 2015, Bucuresti-Romania. - oral
21. C. Achim, S. Banita, M. Patachia, D. C. Dumitras, C. Achim, M. Bercu, **A. M. Bratu**, C. Matei, "Non-invasive CO<sub>2</sub> laser-photoacoustic study of exhaled breath produced by active smoking with electronic vs. traditional cigarettes", la International Conferences on Laser Applications in Life Sciences (LALS 2014), Ulm, Germany: 29 Iunie- 2 Iulie 2014. - oral
22. M. Petrus, **A.M. Bratu**, C. Popa, M. Patachia, C. Matei, S. Banita, D.C. Dumitras, Spectroscopic analysis of surgical smoke produced in vitro by laser vaporization of animal tissue in a closed gaseous environment, New Trend on Sensing-Monitoring-Telediagnosis for Life Sciences (NT SMT-LS 2014), Brasov, Romania July 24-26, 2014 – oral
23. C. Achim, **A.M. Bratu**, M. Bercu, S. Banita, M. Patachia, C. Matei, DC Dumitras, Spectroscopy for breath biomarkers analysis ay young population with mental disorders, ISCP, Orastie, Romania 23-26 September 2014 – oral
24. **A.M. Bratu**, C. Achim, M. Petrus, C. Matei, M. Patachia, S. Banita, DC. Dumitras, LPAS analysis of exhaled breath via the mouth and nose, ISCP, Orastie, Romania 23-26 September 2014- poster P. 29

25. M. Petrus, C. Popa, **A.M. Bratu**, C. Matei, M. Patachia, S. Banita and D.C. Dumitras, Ethylene and ammonia traces measurements from healthy humans with different food diets by LPAS technique, ISCP, Orastie, Romania 23-26 September 2014 – oral
26. D.C. Dumitras, S. Banita, M. Bercu, **A.M. Bratu**, I. Ivascu, C. Matei, M. Patachia, C. Popa, "CO2 laser photoacoustic spectroscopy in new applicative results", The 5th edition of International Student Conference on Photonics (ISCP 2014), 23th – 26th September 2014, Orastie, Hunedoara (Romania). (I) – invitat
27. C. Matei, M. Patachia, M. Petrus, C. Achim, A.M. Bratu, S. Banita, S. miclos, S. Dontu, D. Savastru, M.A. Calin, N. Verga, D. Mirea, D.C. Dumitras, Hybrid imaging system for tumor detection, 23th – 26th September 2014, Orastie, Hunedoara (Romania).
28. C. Achim, **A.M. Bratu**, M. Bercu, S. Banita, M. Patachia, C. Matei, D.C. Dumitras, "Spectroscopy for breath biomarkers analysis at young population with mental disorders", The 5th edition of International Student Conference on Photonics (ISCP 2014), 23th – 26th September 2014, Orastie, Hunedoara – oral
29. S. Banita, M. Patachia, D. C. Dumitras, C. Achim, M. Bercu, **A. M. Bratu**, C. Matei, "Testing fruits quality by laser photoacoustic spectroscopy", 3rd International Conference on Health Science and Biomedical Systems (HSBS14) to be held in Florence, Italy, November 22-24, 2014 – oral
30. C. Achim, S. Banita, M. Patachia, D. C. Dumitras, M. Bercu, **A. M. Bratu**, C. Matei, "Breath biomarkers can help clinicians to assess the role of oxidative attack in young population with mental disorders", The annual International Conference on Advanced Laser Technologies (ALT14), 6 - 10 October 2014, Cassis, France. -oral
31. M. Petrus, C. Popa, **A.M. Bratu**, C. Matei, M. Patachia, S. Banita and D.C. Dumitras, Ethylene and ammonia traces measurements from healthy humans with different food diets by LPAS technique, The annual International Conference on Advanced Laser Technologies (ALT14), 6-10 October 2014, Cassis, France – poster
32. D.C. Dumitras, S. Banita, M. Bercu, **A.M. Bratu**, I. Ivascu, C. Matei, M. Patachia, C. Popa, "New application results in CO2 laser photoacoustic spectroscopy", The annual International Conference on Advanced Laser Technologies (ALT14), 6-10 October 2014, Cassis, France – invatad
33. C. Achim, S. Banita, M. Patachia, D. C. Dumitras, C. Achim, M. Bercu, **A. M. Bratu**, C. Matei, "Non-invasive CO2 laser-photoacoustic study of exhaled breath produced by active smoking with electronic vs. traditional cigarettes", International Conferences on Laser Applications in Life Sciences (LALS 2014), Ulm, Germany: 29 Iunie- 2 Iulie 2014. -oral
34. M. Patachia, S. Banita, C. Popa, C. Matei, **A.M. Bratu**, M. Petrus, D.C. Dumitras, "Dual OCT-Hyperspectral Imaging System for Intraoperative Assessment of tumor Spreading" International Conferences on Laser Applications in Life Sciences (LALS 2014), Ulm, Germany: 29 Iunie- 2 Iulie 2014 – poster
35. C. Popa, S. Banita, M. Patachia C. Matei, **A.M. Bratu**, M. Petrus, D.C. Dumitras, "Human breath biomarker for clinical diagnosis by photoacoustic spectroscopy technique", New Trends on Sensing-Monitoring-Telediagnosis for Life Sciences, Brasov, Romania, (July 24-26, 2014), University of Brasov, Romania – oral
36. **A.M. Bratu**, C. Popa, S. Banita, M. Patachia, C. Matei, M. Petrus, D.C. Dumitras, "Laser photoacoustic spectroscopy for quality evaluation of fruits and vegetables", New Trend on Sensing-Monitoring-Telediagnosis for Life Sciences (NT SMT-LS 2014), Brasov, Romania July 24-26, 2014 – poster
37. C. Matei, C. Popa, **A.M. Bratu**, M. Petrus, M. Patachia, S. Banita, D.C. Dumitras, "Spectroscopia fotoacustica laser-metoda versatila de detectie si monitorizare", Masa Rotunda "Valorificarea durabila a resurselor si mediul inconjurator", 16 octombrie 2014 – oral
38. C. Achim, **A. M. Bratu**, C. Matei, M. Petrus, M. Patachia, S. Banita, D. C. Dumitras, "Non-invasive breath gas analysis based on spectroscopic measurements", 22nd International Laser Physics Workshop LPHYS13, Prague, Czech Republic, July 15-19, 2013 (Poster P3.1).
39. C. Matei, C. Achim, **A. M. Bratu**, M. Patachia, S. Banita, M. Bercu, I. Ivascu, D. C. Dumitras,



“Feasibility of radiobiological studies at Romanian TEWALAS and CETAL laser facilities”, 22nd International Laser Physics Workshop LPHYS13, Prague, Czech Republic, July 15-19, 2013 (Oral EL.8.5).

40. M. Patachia, C. Achim, S. Banita, C. Matei, **A. Bratu**, M. Petrus, D. C. Dumitras, “CW-Diffuse Optical Tomography system: acquisition and electrical signals processing”, 22nd International Laser Physics Workshop LPHYS13, Prague, Czech Republic, July 15-19, 2013 (Poster)

41. S. Banita, C. Achim, M. Patachia, C. Matei, **A. M. Bratu**, M. Petrus, D. C. Dumitras, “Characterization of organic vs. nonorganic raspberries and strawberries fruits using laser photoacoustic spectroscopy”, 22nd International Laser Physics Workshop LPHYS13, Prague, Czech Republic, July 15-19, 2013 (Oral 3.5.2)

42. C. Matei, C. Popa, **A. M. Bratu**, M. Petrus, M. Patachia, S. Banita, D. C. Dumitras, “Dual LPAS system for trace gas detection”, Third Edition of the International Conference "Modern Laser Applications" INDLAS 2013, Bran, Romania, May 20-24, 2013 (Poster)

43. **A. M. Bratu**, M. Petrus, M. Patachia, C. Matei, C. Popa, S. Banita, D. C. Dumitras, “Laser photoacoustic analysis of surgical smoke produced by tissue ablation”, Third Edition of the International Conference "Modern Laser Applications" INDLAS 2013, Bran, Romania, May 20-24, 2013 (Poster P14)

44. C. Popa, C. Matei, S. Banita, M. Patachia, **A. M. Bratu**, M. Petrus, D. C. Dumitras, “Breath ethylene assessment at subjects under haemodialysis treatment”, Third Edition of the International Conference "Modern Laser Applications" INDLAS 2013, Bran, Romania, May 20-24, 2013 (Poster P13)

45. M. Patachia, C. Achim, S. Banita, C. Matei, **A. Bratu**, M. Petrus, D. C. Dumitras, “Acquisition and electrical signal processing in an experimental CW-Diffuse Optical Tomography system”, Third Edition of the International Conference "Modern Laser Applications" INDLAS 2013, Bran, Romania, May 20-24, 2013 (Poster P12)

46. S. Banita, C. Popa, C. Matei, M. Patachia, **A. M. Bratu**, M. Petrus, D. C. Dumitras, “The monitorization of lipid oxidation in strawberries, using photoacoustic spectroscopy assay”, Third Edition of the International Conference "Modern Laser Applications" INDLAS 2013, Bran, Romania, May 20-24, 2013 (Oral)

45. C. Achim, **A. M. Bratu**, C. Matei, M. Petrus, M. Patachia, S. Banita, N. Verga, D. C. Dumitras, “Advantages of laser photoacoustic spectroscopy in radiotherapy characterization”, 1st Annual Conference of the Romanian Society of Hadrontherapy (ICRSH 2013), Predeal, Romania, February 21-24, 2013 (Oral)

46. **A. M. Bratu**, C. Achim, C. Matei, M. Petrus, S. Banita, M. Patachia, D. C. Dumitras, “Gas interference in breath analysis”, 2012 International Breath Analysis Meeting, Sonoma, USA, October 28 – November 1, 2012 (Poster)

47. C. Achim, C. Matei, M. Petrus, **A. M. Bratu**, M. Patachia, S. Banita, D.C. Dumitras, “Breath analysis by laser photoacoustic spectroscopy method”, 2012 International Breath Analysis Meeting, Sonoma, USA, October 28–November 1, 2012 (Oral)

48. C. Matei, S. Banita, C. Achim, **A. M. Bratu**, M. Bercu, M. Patachia, D. C. Dumitras, “Technical performances of a LPAS system for biomarker analysis”, 2012 International Breath Analysis Meeting, Sonoma, USA, October 28–November 1, 2012 (Poster)

49. M. Patachia, D. C. Dutu, S. Banita, C. Achim, M. Petrus, **A. Bratu**, C. Matei, D. C. Dumitras, “Calibration and artifact minimization in a CW Diffuse Optical Tomography system”, International Student Conference on Photonics ISCP 2012, Sinaia, Romania, May 8-11, 2012 (Oral)

50. M. Petrus, C. Matei, M. Patachia, C. Popa, **A. M. Bratu**, S. Banita, D. C. Dumitras, “Quantitative analysis in vitro of surgical smoke by laser photoacoustic spectroscopy”, International Student Conference on Photonics ISCP 2012, Sinaia, Romania, May 8-11, 2012 (Oral)

51. **A. Bratu**, M. Petrus, C. Achim, C. Matei, M. Patachia, S. Banita, D. C. Dumitras, “Quantitative analysis of surgical smoke by laser photoacoustic spectroscopy”, International Student Conference on Photonics ISCP 2012, Sinaia, Romania, May 8-11, 2012 (Oral)

52. S. Banita, D. C. A. Dutu, C. Matei, **A. M. Bratu**, M. Petrus, C. Achim, M. Patachia, D. C.

- Dumitras, „Ethylene concentration measurement at fruits using LPAS”, International Student Workshop on Laser Applications, Bran, Romania, 31 May-4 June, 2011 (Oral)
53. D. C. Dumitras, C. Achim, D. Dutu, C. Matei, R. Cernat, **A. M. Bratu**, M. Petrus, M. Patachia, S. Banita “Qualitative and quantitative determination of human biomarkers by laser photoacoustic spectroscopy methods”, 19-th International Laser Physics Workshop LPHYS’10, Foz do Iguacu, Brasil, 5-9 July 2010 (Invited lecture)
54. C. Achim, R. Cernat, **A. M. Bratu**, S. Banita, D. Dutu, C. Matei, M. Petrus, M. Patachia, D. C. Dumitras, “Breath diagnostics using ultrasensitive CO2 laser photoacoustic spectroscopy system”, International Student Workshop on Laser Applications 2010 ISWLA’10, Bran, 25-28 May 2010 (Poster)
55. D. C. Dumitras, D. C. A. Dutu, M. Patachia, **A. M. Bratu**, M. Petrus, C. Achim, “Laser photoacoustic spectroscopy for exhaled biomarker measurements”, II International Symposium Topical Problems of Biophotonics TPB-2009, Optical Bioimaging/Workshop, Nizhny Novgorod, Russia, 19- 24 July 2009 (Invited lecture)
56. D. C. Dumitras, R. Dabu, D. C. A. Dutu, C. Matei, C. Achim, M. Patachia, M. Petrus, **A. M. Bratu**, S. Banita, “Extreme Light Infrastructure (ELI) and hadron therapy”, First International Workshop on Radiotherapy with Neutrons, Protons and Carbon Ions Beams RNPB ’09, Predeal, România, 27 February-1 March 2009 (Invited lecture)
57. D. C. Dumitras, D. C. Dutu, **A. M. Magureanu**, M. Petrus, C. Matei, C. Popa, “Performances and limits of laser photoacoustic spectroscopy for trace gas measurements”, International Conference Advanced Laser Technologies ALT’08, Siófok, Hungary, September 13-18, 2008 (Invited lecture)
58. D. C. Dumitras, D. C. Dutu, C. Matei, **A. M. Magureanu**, M. Petrus, C. Popa, M. Patachia, “Ethylene monitoring by photoacoustic spectroscopy during radiotherapy in specific oncological cases”, International Conference - INDLAS - Second Edition 2008 “Modern Laser Applications”, Bran, Romania, May 20-23, 2008 (Poster)
59. D. C. Dumitras, D. C. Dutu, C. Matei, **A. M. Magureanu**, M. Petrus, C. Popa, “Laser photoacoustic spectroscopy: principles, instrumentation and characterization”, 15-th International Conference ALT’07, Advanced Laser Technologies, Levi, Finland, September 3-7, 2007 (Invited Lecture)
60. D. C. Dumitras, D. C. Dutu, C. Matei, **A. M. Magureanu**, M. Petrus, C. Popa, “Noises and limiting factors of instruments based on laser photoacoustic spectroscopy”, International Conference Industrial Applications of Lasers INDLAS 2007, Bran, Romania, May 23-25, 2007.

### **National conferences**

1. D.C. Dumitras, D.C. Dutu, C. Matei, **A.M. Magureanu**, M. Petrus, C. Popa, M. Patachia, Ethylene monitoring by photoacoustic spectroscopy during radiotherapy in specific oncological cases, Scientific Session, Faculty of Physics, University of Bucharest Magurele, 6 June 2008 (oral).
2. D.C. Dumitras, D.C. Dutu, C. Matei, **A.M. Magureanu**, M. Petrus, C. Popa, M. Patachia, Near infrared optical tomography for the detection of specific breasts diseases, Symposium "Research of excellence in basic and socio-economic science", University Alexandru Ioan Cuza, Iasi, 18 - 19 September 2008 (poster).
3. D.C. Dumitras, D.C. Dutu, C. Matei, **A.M. Magureanu**, M. Petrus, C. Popa, Improvement of a laser photoacoustic instrument for trace gas detection, Scientific Session, University Politehnica of Bucharest, March, 2007 (oral).