

# CURRICULUM VITAE

*Mădălina Roxana Buneci*

**Date of Birth:** the 16<sup>th</sup> November 1970

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## Education:

- B. Sc. in Mathematics, University of Bucharest, 1994 (1989-1994)
- M.Sc. in Mathematics (Harmonic Analysis), University of Bucharest, 1995 (1994-1995)
- B. Sc. in Computer Science, University of Craiova, 2000 (1996-2000)
- Ph.D. in Mathematics, University of Bucharest, 2001 (1996-2001)  
(Thesis: *Groupoids Representations*, advisor Prof. Ion Colojoara)

## Employment Record:

Tutor	University Constantin Brâncuși of Târgu-Jiu (Department of Applied Mechanics)	1995-1998
Asst. Lecturer	University Constantin Brâncuși of Târgu-Jiu (Department of Applied Mechanics)	1998-2001
Lecturer	University Constantin Brâncuși of Târgu-Jiu (Department of Automatics and Computer Science)	2001-2005
Assoc. Professor	University Constantin Brâncuși of Târgu-Jiu (Department of Automatics and Computer Science)	02.2005-10.2005
Assoc. Professor	University Constantin Brâncuși of Târgu-Jiu (Department of Mathematics)	10.2005-present

## Research Interests:

My research interests are in the field of functional analysis. In particular, my research is mainly concerned with topological (locally compact) groupoids and groupoid  $C^*$ -algebras.

I am also interested in Computer Graphics.

## Teaching Experience

Mathematical Analysis, Linear Algebra, Numerical Methods, Optimization Methods, Computer Graphics, C/C++ Programming.

## Membership of Professional Bodies:

- Member of the Romanian Mathematical Society
- Affiliate member of AMS (American Mathematical Society)

**Reviewing activity:** Zentralblatt reviewer; reviewer for Mathematical Reviews.

**Editorial Boards:** managing editor of *Surveys in Mathematics and its Applications* [ISSN 1842-6298 (electronic), 1843 - 7265 (print)]: <http://www.utgjiu.ro/math/sma/>.

**Peer evaluation for research programmes and projects:**

- CNCSIS (Romanian National University Research Council) Evaluator/Expert: evaluation of project proposals in the framework of the Programme Ideas (of the Romanian National Plan for Research, Development and Innovation for the period 2007-2013)
- Evaluation for National Center for Scholarships Abroad (Romanian Ministry of Education and Research): Programme for financing stages of study or research abroad

**Conferences and seminars organized:**

- *Convolution algebras associated with groupoids and applications* (weekly seminar, 2005-)
- Co-organizer of the workshop *Operator Models and Applications - OMA2006*, Timișoara (Romania), June 29 - July 4, 2006.

**Grants**

- EU-Postdoc Fellowship, Postdoctoral position in mathematical analysis and applications in quantum mechanics, in the framework of the Post-doctoral Training Program HPRN-CT-2002-00277 "*Analysis and Quantum*", November 22, 2004 – January 21, 2005, University of Warsaw (Department of Mathematical Methods in Physics).
- Experience in managing national grants
  1. *Abordarea noțiunilor de simetrie și spațiu din perspectiva grupoidelor (A groupoid approach to notions of symmetry and space)*- grant from the Romanian National University Research Council (CNCSIS) code At 127/2004, under contract no. 33346/29.06.2004 and contract no. 34682/24.06.2005.  
Project manager: M. Buneci  
Research team: C. Cercel, A. Dincă (students)  
(<http://www.utgjiu.ro/math/mbuneci/project/at127.html>)
  2. *Generalized groupoid morphism* - grant CEEEX (Excellence research projects for young researchers) -grant from Romanian Ministry of Education and Research, code ET65/ 2005 under contract no. 2987/11.10.2005.  
Project manager: M. Buneci  
Research team: N. Chiriac, D. Covei, S.Stoian  
(<http://www.utgjiu.ro/math/mbuneci/project/et65.html>)
- Participation in other research projects (as member of the research team)
  1. *The promotion of scientific research concerning: operator models and applications*, grant CEEEX (module: The promotion of participation to research European and international programs; type: Increasing institutional and research programs visibility) from the Romanian Ministry of Education and Research, code PR-D11-PT00-48/2005, contract no 69/2006. Project manager: D. Popovici (West University of Timișoara).  
([http://www.utgjiu.ro/math/vlupulescu/project/PR\\_D11\\_PT00\\_48.html](http://www.utgjiu.ro/math/vlupulescu/project/PR_D11_PT00_48.html))
  2. *Completely Positive Maps*, grant from the Romanian National University Research Council (CNCSIS) code A1065/2006. Project manager M. Joița (Bucharest University)

**Other Professional Abilities:**

- ECDL (European Computer Driving Licence)
- Programming in C/C++
- Mathematical Software: MAPLE
- HTML (I designed the webpage of the Department <http://www.utgjiu.ro/math> including the webpage of the electronic journal *Surveys in Mathematics and its applications*: <http://www.utgjiu.ro/math/sma>)

**Conferences** (to which I have participated) and **Seminar talks**

1. Operator Algebras and Mathematical Physics Conference, Constanța (Romania), July 2-7, 2001-Communication title: *Haar systems and homomorphism on groupoids*
2. Conferința Națională de Analiză Matematică și Aplicații, Craiova (Romania), November 2001-Communication title:  *$C^*$ -algebras associated to the transitive groupoids.*
3. The Abel Bicentennial Conference, Oslo (Norway), June 3-8, 2002.
4. OT19 (19<sup>th</sup> International Conference on Operator Theory), Timișoara (Romania), June 27-July 2, 2002-Communication title: *The equality of the reduced and the full  $C^*$ -algebras and the amenability of a topological groupoid.*
5. ICAM3 (3<sup>rd</sup> International Conference on Applied Mathematics), Borsa (Romania), October 10-13, 2002-Communication title: *Haar systems on a groupoid whose orbit space is an analytic Borel space*
6. Conferința Națională de Analiză Matematică și Aplicații, Cluj Napoca (Romania), November 2002-Communication title: *Some continuity properties of the homomorphisms associated to a pre-Haar system*
7. AMAM 2003 (First EMS-SMAI-SMF Joint Conference -Applied Mathematics and Applications of Mathematics), Nice (France), February 10-13, 2003-Poster: *Connection between the existence of Haar systems on a locally compact groupoid and the type of orbits*
8. CAIM 2003 (Conference on Applied and Industrial Mathematics), Oradea (Romania), May 29-31, 2003 -Communication title: *Isomorphism for transitive groupoid  $C^*$ -algebras*
9. The 28<sup>th</sup> ARA (American-Romanian Academy of Arts and Sciences) Congress, Târgu-Jiu (Romania), June 3-8, 2003-Communication title: *Haar systems and topologies on groupoids*
10. PQR 2003 (Poisson Geometry, Deformation Quantization and Group Representations), ULB, Brussels (Belgium), June 13-22, 2003- Poster: *Invariant means and amenable representations on groupoids*
11. Operator Algebras and Mathematical Physics Conference, Sinaia (Romania), June 26 - July 4, 2003-Communication title: *Amenable Representations on groupoids.*
12. ICTAMI 2003(International Conference on Theory and Applications of Mathematics and Informatics), Alba Iulia (Romania), October 24-26, 2003-Communication title: *Topologies on the graph of the equivalence relation associated to a groupoid.*
13. 4 ECM (Fourth European Congress of Mathematics), Stockholm, June 27 -July 2 2004 - Poster: *Groupoid  $C^*$ -algebras which are independent of the Haar systems.*
14. OT20 (20<sup>th</sup> International Conference on Operator Theory), Timișoara (Romania), June 30 -July 5 2004-Communication title:  *$C^*$ -algebras associated to groupoids with proper orbit space.*
15. ICNODEA-2004 (International Conference on Nonlinear Operators, Differential Equations and Applications), Cluj Napoca (Romania), August 24-27 2004, -Poster : *An application of Mackey's selection lemma.*
16. Analysis and Applied Mathematics Summer School, Rome, University "La Sapienza", September 20-24.
17. Seminar on "Operator algebras and quantum groups", University of Warsaw (Department of Mathematical Methods in Physics): Communication titles:
  - i. December 2, 2004:  *$C^*$ -algebras associated to locally compact groupoids I .*
  - ii. December 9, 2004:  *$C^*$ -algebras associated to locally compact groupoids II .*
18. 4th International Conference on Analysis and Quantum, April 9-11, 2005 (Mathematics Institute of LMU, Munich, Germany)- Communication title: *Morphisms of locally compact groupoids endowed with Haar systems.*
19. A IX-a conferință națională a Societății de Științe Matematice din România, Lugoj, May 6-7, 2005-Communication title: *Amenable map and semi-direct products.*
20. Operator Algebras and Mathematical Physics Conference, Bucharest (Romania), July 10-17, 2005-Communication title: *Groupoid categories.*
21. ICTAMI 2005 (International Conference on Theory and Applications of Mathematics and Informatics) Albac (România), September 15-18, 2005 - Communication title: *A notion of open generalized morphism that carries amenability.*

22. Conferința Națională de Analiză Matematică și Aplicații, Craiova (Romania), September 22-24, 2005 - Communication title: *C\*-algebras and amenable groupoids*.
23. OT21 (International Conference on Operator Theory) Timișoara (Romania), June 29 – July 4 2006 - Communication title: *Borel morphisms and C\*-algebras*.
24. ICM2006 (International Congress of Mathematicians), Madrid, August 21-31 2006 Communication title: *Groupoid morphisms*.
25. MENP-4 (4th International Colloquium “Mathematics in Engineering and Numerical Physics), Bucharest (Romania), October 6-8 2006 - Communication title: *Haar systems compatible with groupoid morphisms*.
26. CAMA 2006 (A VIII-a Conferință de Analiză Matematică și Aplicații), Timișoara (Romania), December 1-2 2006 - Communication title: *C\*-algebras obtained by completion of the space of Borel bounded compactly supported functions on a groupoid*.
27. International Conference on Dynamical Systems ICDS2007, Bolu (Turcia) June 25-30 2007- Communication title: *A category of singly generated dynamical systems*.
28. OT22 (22<sup>th</sup> International Conference on Operator Theory), Timișoara, July 3-8 2008 - Communication title: *Haar systems for double groupoids*.
29. The 20<sup>th</sup> International Conference of The Jangjeon Mathematical Society, Bursa (Turcia), August 21-23 2008 - Communication title: *A generalization of Zakrzewski’s morphisms*.

#### List of Publications

(all the publications in the following list are available at <http://www.utgjiu.ro/math/mbuneci>)

#### Books

- **Lecture notes ( in Romanian)**
  1. M. Buneci, *Dezvoltarea sistemelor expert în PROLOG* (Design of Expert Systems in PROLOG), Editura Lumina, 2000 (110 pp.)
  2. M. Buneci, *Metode Numerice - Lucrări de laborator* (Numerical Methods), Editura Academica Brâncuși, 2003 (272 pp.)
  3. V. Ungureanu and M. Buneci, *Algebră Liniară: teorie și aplicații* (Linear Algebra: theory and applications), Editura Mirton Timișoara, 2004 (344 pp.)
  4. M. Buneci, *Optimizări* (Optimization), Editura Academica Brâncuși, 2008 (254 pp.)
- **Research**
  1. M. Buneci, *Reprezentări de grupoizi* (Groupoid Representations), Editura Mirton Timișoara, 2003 (266 pp).

#### Papers

1. M. Buneci, *C\*-algebras associated to the transitive groupoids*, An. Univ. Craiova Ser. Mat. Inform, **28** (2001), 79-92.
2. M. Buneci, *The structure of the Haar systems on locally compact groupoids*, Math. Phys. Electron. J. **8** (2002) Paper 4, 11 pp. (electronic).
3. M. Buneci, *Consequences of the Hahn structure theorem for Haar measure*, Math. Reports, vol. **4 (54)**, nr. 4(2002), 321-334.
4. M- Buneci, *Haar systems on a groupoid whose orbit space is an analytic Borel space*, Proceedings of the 3rd International Conference on Applied Mathematics (Borșa, 2002). Bul. Științ. Univ. Baia Mare Ser. B Fasc. Mat.-Inform. **18** (2002), no. 2, 159-164.
5. M. Buneci, *Groupoid algebras for transitive groupoids*, Math. Reports, vol. **5 (55)**, nr. 1 (2003), 9-26.
6. M. Buneci, *Invariant means on groupoids*, Rev. Roumaine Math. Pures Appl., **48** (2003), no. 1, 13-29.
7. M. Buneci, *Amenable unitary representations of measured groupoids*, Rev. Roumaine Math. Pures Appl., **48** (2003), no. 2, 129-133.
8. M. Buneci, *Isomorphism for transitive groupoid C\*-algebras*, Proceedings of CAIM 2003 (Conference

- on Applied and Industrial Mathematics), Vol. 1, Editura Universității din Oradea (2003), 42-46.
9. M. Buneci, *Haar systems and homomorphisms on groupoids*. Operator algebras and mathematical physics (Constanta, 2001), (eds. J-M. Combes, J. Cuntz, G. Elliott, Gh. Nenciu, H. Siedentop, Ș. Strătilă), Theta, Bucharest, 2003, 35-49.
  10. M. Buneci, *Topologies on the graph of the equivalence relation associated to a groupoid*, Acta Univ. Apulensis Math. Inform No. **6** (2003). - Proceedings of the International Conference on Theory and Applications of Mathematics and Informatics ICTAMI 2003-Part A, 23-32.
  11. M. Buneci, *Necessary and sufficient conditions for the continuity of a pre-Haar system at a unit with singleton orbit*, Quasigroups and Related Systems **12** (2004), 29-38.
  12. M. Buneci, *The equality of the reduced and the full  $C^*$ -algebras and the amenability of a topological groupoid*, Recent advances in operator theory, operator algebras, and their applications, 61-78. Oper. Theory Adv. Appl., **153**, (eds. D. Gaspar, I. Gohberg, D. Timotin, F. H. Vasilescu, L. Zsido), Birkhauser, Basel, 2005, 61-78.
  13. M. Buneci, *Morphisms that are continuous on a neighborhood of the base of a groupoid*, Studia Sci. Math. Hungar. **42**(3) (2005), 265-276.
  14. M. Buneci, *Isomorphic groupoid  $C^*$ -algebras associated with different Haar systems*, New York J. Math. **11**(2005), 225-245.
  15. M. Buneci, *An application of Mackey's selection lemma*, Studia Universitatis Babes-Bolyai, Matematica vol. L(4) (2005), 23-32.
  16. M. Buneci, *Amenable equivariant maps defined on a groupoid*, Advances in Operator Algebras and Mathematical Physics –Conference Proceedings, Sinaia (Romania), June 26-July 4, 2003 (eds. F.P. Boca, O. Bratteli, R.Longo, H. Siedentop), 25--41, Theta Ser. Adv. Math., **5**, Theta, Bucharest, 2005.
  17. M. Buneci,  *$C^*$ -algebras associated to groupoids with proper orbit space*, Advances in operator algebras and mathematical physics, 45-53, Theta Ser. Adv. Math., **6**, Theta, Bucharest, 2006. (eds.K. R. Davidson, D. Gașpar, Ș. Strătilă, D. Timotin, F.H. Vasilescu).
  18. M. Buneci, *Amenable map and semi-direct products*, Proceedings of the 9th National conference of the Romanian Mathematical Society, Lugoj, May 6-7 2005, Editura Universitatii de Vest, Seria Alef, Timisoara 2005, 69-80.
  19. M. Buneci, *A notion of open generalized morphism that carries amenability*, Acta Univ. Apulensis Math. Inform. No. **10** (2005)- Proceedings of the International Conference on Theory and Applications of Mathematics and Informatics (ICTAMI 2005) -Part A, 177-187.
  20. M. Buneci, *Groupoid  $C^*$ -algebras*, *Surveys in Mathematics and its Applications*, **1** (2006), 71-98.
  21. M. Buneci, *Haar systems compatible with groupoid morphisms*, An. Univ. Timisoara Ser. Mat.-Inform., **44**(2006) no. 2, 19-32.
  22. M. Buneci,  *$C^*$ -Norms on the Algebra of Continuous Functions with Compact Support on a Locally Compact Groupoid*, An. Univ. Timisoara Ser. Mat.-Inform., **45**(2007) no. 1, 91-108.
  23. M. Buneci, *Groupoid categories*, Perspectives in Operators Algebras and Mathematical Physics (Proceedings of the conference “Operator Algebras and Mathematical Physics 3”, Bucharest, Romania, August 10-17, 2005), 27-40, Theta Ser. Adv. Math., **8**, Theta, Bucharest, 2008. (eds. F. Boca, R. Purice, S. Strătilă).
  24. M. Buneci, *Borel morphisms and  $C^*$ -algebras*, Hot Topics in Operator Theory (Proceedings of the 21st International Conference on Operator Theory, Timișoara, June 29 – July 4, 2006), 23-37, Theta Ser. Adv. Math., **9**, Theta, Bucharest, 2008. (eds. R.G. Douglas, J. Esterle, D. Gașpar, D. Timotin and F.-H. Vasilescu).

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