

# RĂZVAN DIACONESCU

curriculum vitae

September 16, 2017

## **CONTACT:**

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## **PERSONAL DATA:**

Born on 19 March 1964 in Ploiești, România.  
Romanian nationality.  
Fluent in Romanian and English languages.

## **DIPLOMAS:**

- *Habilitation* in Informatics, IMAR (România), 2014.
- *DPhil* in Computation, Faculty of Mathematical Sciences, University of Oxford (England), 1994.
- *MSc* in Algebra and Informatics, Faculty of Mathematics, Universitatea București (România), 1988.
- *BSc* in Informatics, Faculty of Mathematics, Universitatea București (România), 1987.
- *Bacalaureat*, Liceul teoretic “Mihai Viteazul” Ploiești (România), 1982.

## **EMPLOYMENT:**

- Head of IMAR<sup>†</sup> Department of *Number Theory and Computational Methods*, since 2015.
- Research Professor (CS1) at IMAR<sup>†</sup>, since 2001.
- Research Associate Professor (CS2) at IMAR<sup>†</sup>, 1997–2001
- Panasonic-Fujitsu-USAC Endowed Chair & Associate at JAIST\*, 1996–1999.
- Research Assistant Professor (CS3) at IMAR<sup>†</sup>, 1995–1997.
- Visiting Researcher at the Naval Postgraduate School, Monterey, CA, Sept 1994.
- Researcher at IMAR<sup>†</sup>, 1990–1995.

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<sup>†</sup>Simion Stoilow Institute of Mathematics of the Romanian Academy. [www.imar.ro](http://www.imar.ro)

\*Japan Advanced Institute for Science and Technology, Hokuriku. [www.jaist.ac.jp](http://www.jaist.ac.jp)

## **PROFESSIONAL AWARDS AND DISTINCTIONS:**

- Birkhäuser Award for the winner of the contest “How to translate a logic into another one?” of the *2nd World Congress of Universal Logic* (joint work with T. Mossakowski and A. Tarlecki) (2007).
- *Grigore Moisil Award* (for 2002) of the Romanian Academy (2004).
- J. William Fulbright Award under *Mutual Educational Exchange Program* (1996).<sup>‡</sup>
- US National Research Council *Resident Research Associateship Award* (1995).<sup>‡</sup>
- Winner of the *Romanian National Mathematical Olympiad* (1979).

## **PUBLICATION LIST**

### **STATISTICS**

- 60% peer-reviewed journal publications, 87% of them in ISI Web of Science indexed journals;
- publications in 24 journals (18 ISI Web of Science indexed journals) in informatics, mathematics, logic and philosophy;
- 60% of publications are single authored;
- paramount scientists as co-authors: J. Goguen, R. Burstall, A. Tarlecki, T. Mossakowski, etc.
- 3000 citations ([Google Scholar](#)); h-index = 26 (Google Scholar), =15 ([Scopus](#)),

### **THESES**

- [1-T] *Institution Theory and Applications*,  
Habilitation thesis, Simion Stoilow Institute of Mathematics of the Romanian Academy, 2014.
- [2-T] *Category-based Semantics for Equational and Constraint Logic Programming*,  
DPhil thesis, University of Oxford, 1994. (published as OUCL Monograph PRG-116, 120 pages)
- [3-T] *Monadic Signatures for Abstract Model Theory*,  
MSc thesis, Universitatea București, 1988.
- [4-T] *Algebraic Aspects of Logic Programming and Theorem Proving*,  
BSc graduation thesis, Universitatea București, 1987.

### **MONOGRAPHS AND TEXTBOOKS**

- [5-B] *Institution-independent Model Theory*,  
volume of *Studies in Universal Logic* series. Birkhäuser Basel, 2008. (386 pages).
- [6-B] *CafeOBJ Report: the language, proof techniques, and methodologies for object-oriented algebraic specification* (with K. Futatsugi),  
volume 6 of *AMAST Series in Computing*. World Scientific Singapore, 1998. (174 pages)

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<sup>‡</sup>But fellowship declined due to concurrency with other professional commitments.

## JOURNAL ARTICLES (PEER-REVIEWED)

- [7-J] [Implicit Kripke semantics and ultraproducts in stratified institutions](#),  
*Journal of Logic and Computation*, 27(5):1577–1606, Oxford Univ. Press, 2017.
- [8-J] [Functorial semantics of first-order views](#),  
*Theoretical Computer Science* 656:46–59, Elsevier, 2016.
- [9-J] [Encoding hybridized institutions into first order logic](#) (with Alexandre Madeira),  
*Mathematical Structures in Computer Science* 26(5):745–788, Cambridge Univ. Press, 2016.
- [10-J] [Quasi-varieties and initial semantics for hybridized institutions](#),  
*Journal of Logic and Computation* 26(3):855–891, Oxford Univ. Press, 2016.
- [11-J] [Institution Theory](#),  
*Internet Encyclopedia of Philosophy*, 2016.
- [12-J] [On the existence of translations of structured specifications](#),  
*Information Processing Letters* 115:15–22, Elsevier, 2015.
- [13-J] [The institution-theoretic scope of logic theorems](#) (with T. Mossakowski and A. Tarlecki),  
*Logica Universalis*, 8(3-4):393–406, Springer Basel, 2014.
- [14-J] [Graded consequence: an institution theoretic study](#),  
*Soft Computing*, 18(7):1247–1267, Springer, 2014.
- [15-J] [Foundations for structuring behavioural specifications](#) (with I. ȚuȚu),  
*Journal of Logical and Algebraic Methods in Programming*, 83(3-4):319–338, Elsevier, 2014.
- [16-J] [Institutional semantics for many-valued logics](#),  
*Fuzzy Sets and Systems*, 218:32–52, Elsevier, 2013.
- [17-J] [Borrowing interpolation](#),  
*Journal of Logic and Computation*, 22(3):561–586, Oxford Univ. Press, 2012.
- [18-J] [An axiomatic approach to structuring specifications](#),  
*Theoretical Computer Science*, 433:20–42, Elsevier, 2012.
- [19-J] [Interpolation for predefined types](#),  
*Mathematical Structures in Computer Science*, 22(1):1–24, Cambridge Univ. Press, 2012.
- [20-J] [Grothendieck inclusion systems](#),  
*Applied Categorical Structures*, 19(5):783–802, Springer, 2011.
- [21-J] [Structural Induction in Institutions](#),  
*Information and Computation*, 209(9):1197–1222, Elsevier, 2011.
- [22-J] [On the Algebra of Structured Specifications](#) (with I. ȚuȚu),  
*Theoretical Computer Science*, 412(28):3145–3174, Elsevier, 2011.
- [23-J] [On quasi-varieties of multiple valued logic models](#),  
*Mathematical Logic Quarterly*, 57(2):194–203, Wiley, 2011.
- [24-J] [Coinduction for preordered algebras](#),  
*Information and Computation*, 209(2):108–117, Elsevier, 2011.
- [25-J] [Saturated models in institutions](#) (with M. Petria),  
*Archive for Mathematical Logic*, 49(6):693–723, Springer, 2010.
- [26-J] [Quasi-Boolean encodings and conditionals in algebraic specification](#),  
*Journal of Logic and Algebraic Programming*, 79(2):174–188, Elsevier, 2010.
- [27-J] [An encoding of partial algebras as total algebras](#),  
*Information Processing Letters*, 109(23-24):1245–1251, Elsevier, 2009.
- [28-J] [What is a Logic Translation?](#) (with T. Mossakowski and A. Tarlecki),  
*Logica Universalis*, 3(1):59–94, Birkhäuser, 2009.
- [29-J] [A categorical study on the finiteness of specifications](#),  
*Information Processing Letters*, 108(2):75–80, Elsevier, 2008.
- [30-J] [Ultraproducts and possible worlds semantics in institutions](#) (with P. Stefaneas),  
*Theoretical Computer Science*, 379(1):210–230, Elsevier, 2007.

- [31-J] [Stratified institutions and elementary homomorphisms](#) (with M. Aiguier),  
*Information Processing Letters*, 103(1):5–13, Elsevier, 2007.
- [32-J] [Abstract Beth definability in institutions](#) (with M. Petria),  
*Journal of Symbolic Logic*, 71(3):1002–1028, 2006.
- [33-J] [Proof systems for institutional logic](#),  
*Journal of Logic and Computation*, 16(3):339–357, Oxford Univ. Press, 2006.
- [34-J] [Behavioural specification for hierarchical object composition](#),  
*Theoretical Computer Science*, 343(3):305–331, Elsevier, 2005.
- [35-J] [Elementary diagrams in institutions](#),  
*Journal of Logic and Computation*, 14(5):651–674, Oxford Univ. Press, 2004.
- [36-J] [Herbrand theorems in arbitrary institutions](#),  
*Information Processing Letters*, 90:29–37, Elsevier, 2004.
- [37-J] [An institution-independent proof of Craig interpolation theorem](#),  
*Studia Logica*, 77(1):59–79, Springer, 2004.
- [38-J] [Interpolation in Grothendieck institutions](#),  
*Theoretical Computer Science*, 311:439–461, Elsevier, 2004.
- [39-J] Modality in open institutions with concrete syntax (with P. Stefaneas),  
*Bulletin of the Greek Mathematical Society*, 49:91–101, 2004.
- [40-J] [CafeOBJ: logical foundations and methodologies](#) (with K. Futatsugi and K. Ogata),  
*Computing and Informatics*, 22:257–283, 2003.
- [41-J] [Institution-independent ultraproducts](#),  
*Fundamenta Informaticæ*, 55(3-4):321–348, IOS Press, 2003.
- [42-J] [Logical foundations of CafeOBJ](#) (with K. Futatsugi),  
*Theoretical Computer Science*, 285:289–318, Elsevier, 2002.
- [43-J] [Grothendieck institutions](#),  
*Applied Categorical Structures*, 10(4):383–402, Kluwer, 2002.
- [44-J] [Behavioural coherence in object-oriented algebraic specification](#) (with K. Futatsugi),  
*Universal Computer Science*, 6(1):74–96, Springer, 2000.
- [45-J] [Category-based constraint logics](#),  
*Mathematical Structures in Computer Science*, 10(3):373–407, Cambridge Univ. Press, 2000.
- [46-J] [Extra theory morphisms for institutions: logical semantics for multi-paradigm languages](#),  
*Applied Categorical Structures*, 6(4):427–453, Kluwer, 1998.
- [47-J] An overview of CafeOBJ (with K. Futatsugi, M. Ishisone, A. Nakagawa and T. Sawada),  
*Electronic Notes in Theoretical Computer Science*, 15:285–298, Elsevier Science, 1998.
- [48-J] Category-based modularization for equational logic programming,  
*Acta Informatica*, 33(5):477–510, Springer, 1996.
- [49-J] Foundations of behavioural specification in rewriting logic,  
*Electronic Notes in Theoretical Computer Science*, 4:226–245, Elsevier Science, 1996.
- [50-J] Completeness of category-based equational deduction,  
*Mathematical Structures in Computer Science*, 5(1):9–41, Cambridge Univ. Press, 1995.
- [51-J] An Oxford survey of order sorted algebra (with J. Goguen),  
*Mathematical Structures in Computer Science*, 4(4):363–392, Cambridge Univ. Press, 1994.
- [52-J] [Contraction algebras and unification of infinite terms](#),  
*Journal of Computer and System Sciences*, 44(1):23–43, Academic Press, 1992.
- [53-J] A short Oxford survey of order sorted algebra (with J. Goguen),  
*Bulletin of EATCS*, 48:121–133, European Association of Theoretical Computer Science, 1992.

#### INVITED PAPERS

- [54-I] [Universal logic and computation](#) (editorial),  
*Journal of Logic and Computation*, 27(6):1677–1678, Oxford Univ. Press, 2017.

- [55-I] [Structuring of Specification Modules \(extended\)](#),  
*Computer Science Journal of Moldova*, 23(2):135–152, 2015.
- [56-I] [Structuring of Specification Modules](#),  
in Proceedings of the Workshop on *Foundations of Informatics – FOI 2015*, pages 4–13, Institute of Mathematics and Computer Science, Chişinău, Republic of Moldova, August 2015. ISBN 978-9975-4237-3-1
- [57-I] [From universal logic to computer science, and back](#),  
in G. Ciobanu and D. Méry (Eds.): *Theoretical Aspects of Computing – ICTAC 2014*,  
*Lecture Notes in Computer Science 8687*, pages 1–16, Springer Switzerland, 2014.
- [58-I] An introduction to category-based equational logic (with J. Goguen),  
in V.S. Alagar and Maurice Nivat, editors, *Algebraic Methodology and Software Technology*, vol. 936 of  
*Lecture Notes in Computer Science*, pag. 91–126, Springer, 1995.
- [59-I] [Hiding and behaviour: an institutional approach](#) (with R. Burstall),  
in A. William Roscoe, editor,  
*A Classical Mind: Essays in Honour of C.A.R. Hoare*, pages 75–92, Prentice-Hall, 1994.

#### BOOK CHAPTERS

- [60-P] [The Algebra of Opposition \(and universal logic interpretations\)](#),  
in A. Koslow and A. Buchsbaum editors,  
*The Road to Universal Logic*, pages 127–143, Springer Basel, 2015.
- [61-P] [Three decades of institution theory](#),  
in Jean-Yves Beziau editor,  
*Universal Logic: an Anthology*, pages 309–322, Springer Basel, 2012.
- [62-P] A methodological guide to CafeOBJ logic,  
in Dines Björner and Martin Henson editors,  
*Logics of Specification Languages*, pages 153–240, Springer-Verlag Berlin Heiderberg, 2008.
- [63-P] [Institutions, Madhyamaka, and universal model theory](#),  
in Jean-Yves Béziau and Alexandre Costa-Leite editors,  
*Perspectives in Universal Logic*, pages 41–65, Polimetrica, 2007.
- [64-P] [What is a Logic?](#) (with T. Mossakowski, J. Goguen and A. Tarlecki),  
in Jean-Yves Beziau editor,  
*Logica Universalis*, pages 113–133, Birkhauser, 2005.
- [65-P] CafeOBJ jewels (with K. Futatsugi and S. Iida),  
In Kokichi Futatsugi, Ataru Nakagawa, and Tetsuo Tamai editors,  
*Cafe: An Industrial-Strength Algebraic Formal Method*, Elsevier, 2000.
- [66-P] Component-based algebraic specification - behavioural specification for component-based software engineering - (with S. Iida and K. Futatsugi),  
In *Behavioral specifications of businesses and systems*, The Springer International Series in Engineering and Computer Science Volume 523, pages 105–121, Kluwer, 1999.
- [67-P] A short Oxford survey of order sorted algebra (with J. Goguen),  
*Current Trends in Theoretical Computer Science: Essays and Tutorials*, World Scientific, 1993, pages 209–221.

#### CONFERENCE PUBLICATIONS (PEER-REVIEWED)

- [68-C] CafeOBJ traces,  
in S. Iida, J. Meseguer, K. Ogata editors,  
*Specification, Software and Algebra*, volume 8373 *Lecture Notes in Computer Science*, pages 53–65,  
Springer, Berlin Heidelberg, 2014.
- [69-C] Hybridization of Institutions (with M. Martins, A. Madeira and L. Barbosa),  
in Andrea Corradini, Bartek Klin and Corina Cîrstea editors,  
*Algebra and Coalgebra in Computer Science*, volume 6859 *Lecture Notes in Computer Science*, pages 283–297, Springer, Berlin Heidelberg, 2011.

- [70-C] Jewels of institution-independent model theory,  
in Kokichi Futatsugi, Jean-Pierre Jouannaud, and Jose Meseguer editors,  
*Algebra, Meaning, and Computation* (a Festschrift in honour of Professor Joseph Goguen), vol. 4060 of  
*Lecture Notes in Computer Science*, pag. 65–98, Springer, 2006.
- [71-C] Behavioural specification of hierarchical object composition,  
in Frank S. de Boer, Marcello M. Bonsangue, Susanne Graf and Willem-Paul de Roever editors,  
*Formal Methods for Components and Objects*, vol. 3188 of *Lecture Notes in Computer Science*, pag. 134–156,  
Springer, 2004.
- [72-C] [Component-based algebraic specification and verification in CafeOBJ](#) (with K. Futatsugi and S. Iida),  
in Jeanette M. Wing, Jim Woodcock and Jim Davies editors,  
*FM'99 – Formal Methods*, vol. 1709 of *Lecture Notes in Computer Science*, pg. 1644–1663, Springer, 1999.
- [73-C] A category-based equational logic semantics to constraint programming,  
in Magne Haveraaen, Olaf Owe, and Ole-Johan Dahl, editors,  
*Recent Trends in Data Type Specification*, vol. 1130 of *Lecture Notes in Computer Science*, pag. 200–221,  
Springer, 1996.
- [74-C] Towards an algebraic semantics for the object paradigm (with J. Goguen),  
In Harmut Ehrig and Fernando Orejas, editors,  
*Recent Trends in Data Type Specification*, vol. 785 of *Lecture Notes in Computer Science*, pag. 1–34,  
Springer, 1994.
- [75-C] [Logical support for modularization](#) (with J. Goguen and P. Stefaneas),  
In Gerard Huet and Gordon Plotkin, editors,  
*Logical Environments*, pages 83–130, Cambridge Univ. Press, 1993.
- [76-C] Component-based algebraic specification: – behavioural specification for component based software engineering – (with S. Iida and K. Futatsugi),  
in *7th OOPSLA Workshop on Behavioral Semantics of OO Business and System Specification*, 1998. Also in the technical report of Technical University of Munich TUM-I9820.
- [77-C] Logical semantics for CafeOBJ (with K. Futatsugi),  
In *Precise Semantics for Software Modeling Techniques*, 1998. Technical Report TUM-I9803, Technical University Munchen, pages 31–54. Proceedings of an ICSE'98 workshop held in Kyoto, Japan.
- [78-C] Free monads in the hypercategory of all the monads,  
In *East European Category Seminar 1990*. Proceedings of a Workshop held in Predela, Bulgaria, March 1990.

#### TECHNICAL REPORTS (NOT PUBLISHED ELSEWHERE)

- [79-R]  $\frac{3}{2}$ -Institutions: an institution theory for conceptual blending.  
[arXiv:1708.09675 \[math.LO\]](#), 2017.
- [80-R] WADT 2014 Preliminary Proceedings (with M. Codescu, I. Țuțu)  
Technical Report 7-2014, Simion Stoilow Institute of Mathematics of the Romanian Academy, 2014.
- [81-R] A module algebra for behavioural specifications.  
In N. Marti-Oliet and M. Palomino editors, *WADT 2012 Preliminary Proceedings*, Technical report TR-08/12 pages 44–45, Universidad Complutense de Madrid Departamento de Sistemas Informaticos y Computacion, 2012.
- [82-R] (with K. Futatsugi and S. Iida) Component-based algebraic specification and verification in CafeOBJ.  
Technical Report IS-RR-99-0020S, Japan Advanced Institute for Science and Technology, 1999.
- [83-R] (with P. Stefaneas) Categorical foundations of modularization for multi-paradigm languages.  
Technical Report IS-RR-98-0014F, Japan Advanced Institute for Science and Technology, 1998.
- [84-R] (with S. Iida, M. Matsumoto, K. Futatsugi and D. Lucanu) Concurrent object composition in CafeOBJ.  
Technical Report IS-RR-98-0009S, Japan Advanced Institute for Science and Technology, 1998.
- [85-R] (with P. Stefaneas) Modality in open institutions with concrete syntax.  
Technical Report IS-RR-97-0046F, Japan Advanced Institute for Science and Technology, 1997.
- [86-R] Completeness of semantic paramodulation: a category-based approach.  
Technical Report IS-RR-96-0006S, Japan Advanced Institute for Science and Technology, 1996.
- [87-R] The logic of Horn clauses is equational.  
Technical Report PRG-TR-3-93, Programming Research Group, University of Oxford, 1990.



[88-R] Monadic equational logic.  
Technical Report 9-90, INCREST București, 1990.

## **EDITORIAL WORK:**

### **VOLUMES**

[89-E] *Universal Logic and Computation. Special issue to celebrate Jean-Yves Beziau's 50th birthday*, (with M. Coniglio), *Journal of Logic and Computation* 27(6), Oxford University Press, 2017.

[90-E] *Recent Trends in Algebraic Development Techniques* – 22nd International Workshop, WADT 2014, revised selected papers (with M. Codrescu and I. Ţuţu), volume 9463 of *Lecture Notes in Computer Science (Theoretical Computer Science and General Issues)*, Springer, 2015.

### **EDITORIAL BOARD MEMBERSHIP**

- *Studies in Universal Logic* book series at Springer Basel (formerly Birkhäuser), Switzerland (2007–).
- *International Journal of Mathematics and Mathematical Sciences* at Hindawi Publishing Corporation, USA (2013–).
- *ISRN Algebra* at Hindawi Publishing Corporation, USA (2013–2014).
- *International Scholarly Research Notices* at Hindawi Publishing Corporation, USA (2014–).

## **PRESENTATIONS**

### **KEYNOTE/INVITED SPEAKER**

- “Mathematical Foundations for Conceptual Blending”, *Working Formal Methods Symposium*, Bucharest, Romania, July 2017.
- “ $\frac{3}{2}$ -Institutions – an institution-theoretic perspective to theory blending”, *From Computational Creativity to Creativity Science* conference, Zentrum für interdisziplinäre Forschung, Bielefeld, Germany, September 2016.
- “Structuring of Specification Modules”, *Workshop on Foundations of Informatics 2015*, Chişinău, Moldova, August 2015.
- “On the logical nature of the Nalanda tradition of Buddhism”, *1st World Congress on Logic and Religion*, João Pessoa, Brazil, April 2015.
- “From universal logic to computer science, and back”, *11th International Colloquium on Theoretical Aspects of Computing*, Bucharest, Romania, September 2014.
- “Stainless Formal Verification”, *JAIST Advanced School on Formal Specification and Systems Verification 2010*, Kanazawa, Japan, March 2010.
- “Institution theory and Buddhist thinking”, *2nd World Congress on Universal Logic*, Xi’an, China, August 2007.
- “Behavioural Specification of Hierarchical Object Composition”, *2nd Formal Methods for Components and Objects Symposium*, Leiden, Netherlands, November 2003.

### **TUTORIALS**

- “Theory of institutions”, *4th World School on Universal Logic*, Rio de Janeiro, Brazil, March/April 2013.
- “Institution theory for computer science”, *Mondrian Workshop*, Aveiro, Portugal, July 2010.
- “CafeOBJ: logical foundations and methodologies”, invited lecture course in the European Summer School on *Logics for Specification Languages*, Stara Lesna, Slovakia, June 2004.

### **OTHER PRESENTATIONS**

- “Composition of specification modules: recent developments” (via Skype), *Workshop of the THALES project Algebraic modeling of topological and computational structures*, National Technical University Athens, Greece, July 2015.

- “The Architecture of Logical Interpolation”, *IMAR Monthly Conferences*, February 2015.
- “Composition of specification modules: recent developments”, *2014 Conference on Computational Intelligence and Software Engineering (CiSE 2014)*, Beijing, China, July 2014.
- “Institution Theory and Applications”, Habilitation defence, IMAR, May 2014.
- “Thoughts on graded consequence”, (*last*) *Mondrian Workshop*, Aveiro, Portugal, July 2013.
- “Institution theoretic scope of logic theorems”, *4th World Congress on Universal Logic*, Rio de Janeiro, Brazil, April 2013.
- “Institution theory: internal logic”, *Logic Seminar*, IMAR, March 2013.
- “Institution theory: introduction”, *Logic Seminar*, IMAR, March 2013.
- “A module algebra for behavioural specifications”, *The 21th Workshop on Algebraic Development Techniques*, Salamanca, Spain, June 2012.
- “Towards Automated Structural Induction: an institution-independent methodology”, *Third Romanian-Japanese Algebraic Specification Workshop*, Sinaia, Romania, April 2012.
- “Guidelines for Formal Specification and Verification”, *Second Romanian-Japanese Algebraic Specification Workshop*, Sinaia, Romania, March 2011.
- “Coinduction for preordered algebras”, *Mondrian Workshop*, Aveiro, Portugal, July 2010.
- “Stainless Formal Verification”, *3rd MAP-i Doctoral Symposium*, Aveiro, Portugal, July 2010.
- “Introduction to institution theory”, Senshu University, Tokyo, Japan, March 2010.
- “What is a formal proof?”, *Conference on Logic, Algebra, and Fundamentals of Computer Science*, IMAR, Bucharest, Romania, May 2008.
- “What is a logic translation?”, *2nd World Congress on Universal Logic*, Xi’an, China, August 2007. (winner of the UNIOLOG’07 contest ‘What is a logic translation?’)
- “Inclusion Systems”, Faculty of Mathematics and Informatics, University “Ovidius” Constanța, April 2007.
- “Behavioural specification of hierarchical object composition”, *DFKI*, University of Bremen, November 2006.
- “Ultraproducts in institution-independent model theory”, *KatMAT* (category theory) seminar, University of Bremen, November 2006.
- “Jewels of institution-independent model theory”, *Symposium Algebra, Meaning and Computation*, La Jolla, California, June 2006.
- “Institution-independent Model Theory”, IFIP 1.3 WG meeting, La Roche, Belgium, June 2006.
- “Behavioural specification of hierarchical object composition”, *Institute d’Informatique*, Universite Notre-Dame de la Paix, Namur, Belgium, May 2006.
- “Behavioural specification of hierarchical object composition”, *Language Design Laboratory seminary*, Japan Advanced Institute for Science and Technology, Ishikawa-ken, Japan, March 2006.
- “Institution-independent Model Theory”, *Symposium for the 100th anniversary of Grigore Moisil*, Bucharest, Romania, January 2006.
- “Institutions: methodological implications”, *Logic Colloquium 2005* (Association of Symbolic Logic European Summer Meeting), Athens, Greece, July-August 2005.
- “What is a Logic?”, *First World Congress on Universal Logic*, Montreux, Switzerland, March-April 2005.
- “Abstract Modalities and Institutions”, *Workshop on Combination of Logics: theory and applications*, Lisbon, Portugal, July 2004.
- “Formal Specification and Verification with CafeOBJ: logical foundations and methodologies”, *VERIMAG*, Grenoble, France, March 2004.
- “Abstract Modal Logic”, *4th Panhellenic Logic Symposium*, Thessaloniki, Greece, July 2003.
- “From Birkhoff axiomatizability to Interpolation: a categorical model theoretic approach”, *Logic Seminar*, University of Athens, Greece, March 2003.
- “Institutions in algebraic specification”, a V-a conferință *Modelarea structural-fenomenologică*, Academia Română, June 2001.
- “Specificații Algebrice: drumul de la logica ecuațională la teoria abstractă a modelelor categorială”, *Seminarul Mari teme matematice in secolul XX*, Bucharest, Romania, May 2000.
- “Grothendieck Institutions”, *Instituto Tecnico Superior*, Lisbon, Portugal, November 1999.
- “Component-based Algebraic Specification and Verification in CafeOBJ”, *World Congress on Formal Methods FM’99*, Toulouse, France, September 1999.
- “Object-oriented Algebraic Specification and Verification in CafeOBJ”, project presentation at *2nd Panhellenic Logic Symposium*, Delfi, Greece, July 1999.
- “Behavioural Methodologies for Algebraic Specification and Verification”, IFIP2.2 WG Meeting, Udine, Italy, June 1999.
- “Rezultate Recente in Teoria Specificațiilor Algebrice”, *50th Anniversary of the IMAR Conference*, Bucharest, Romania, June 1999.
- “Object-oriented Methodologies in CafeOBJ”, *CafeOBJ Workshop*, Miurakaigan, Japan, April 1999.
- “A Survey of Institutions”, National Technical University of Athens, Greece, November 1998.
- “CafeOBJ: language definition, proof techniques and methodologies”, *CafeOBJ Symposium*, Numazu, Japan, April 1998.
- “Logical Semantics for CafeOBJ”, *Precise Semantics for Software Modeling Techniques*, Kyoto, Japan, April 1998.



- “Overview of the CafeOBJ Definition”, University of Kyushu, Fukuoka, Japan, February 1998.
- “Modern Algebraic Specification and Verification in CafeOBJ”, Philips Research Laboratories, Eindhoven, The Netherlands, January 1998.
- “Overview of the CafeOBJ Definition”, the 3rd CafeOBJ International Workshop, Kanazawa, Japan, October 1997.
- “The CafeOBJ Definition”, the First Romanian-Japanese Algebraic Specification Meeting, Sinaia, Romania, August 1997.
- “Teorii Categoriale ale Modelelor în Informatica Teoretică”, Institute of Mathematics of the Romanian Academy, May 1997.
- “Modern algebraic specification and programming in CafeOBJ”, National Technical University of Athens, Greece, April 1997.
- “An overview of the current stage of CafeOBJ”, 2nd CafeOBJ International Workshop, Saitama, Japan, March 1997.
- “The CafeOBJ Definition”, CafeOBJ project meeting, Tōkyō, Japan, January 1997.
- “Foundations of behavioural specification in rewriting logic”, 1st International Workshop on Rewriting Logic and its Applications, Asilomar, California, September 1996.
- “Logical Semantics for CafeOBJ”, 1st CafeOBJ International Workshop, Shonnan International Village, Kanagawa, Japan, August 1996.
- “Institutions: abstract model theory for Computing”, Algebra and Logic Seminar, Japan Advanced Institute for Sci. & Tech., May 1996.
- “Common Framework Initiative”, CafeOBJ project meeting, Tōkyō, Japan, February 1996.
- “Extensible Modular Constraint Programming: a category-based equational logic perspective”, the University of Amsterdam, Netherlands, November 1995.
- “Category-based Equational Logic Semantics to Constraint Programming”, presented at the joint 11th ADT conference and COMPASS workshop, Oslo, Norway, September 1995.
- “Category-based Equational Logic Programming”, presented at BRICS, University of Aarhus, Denmark, August 1995.
- “Completeness of Model Theoretic Paramodulation: a Category-based Approach” joint 10th ADT conference and COMPASS workshop, St Margherita Ligure, Italy, May/June 1994.
- “Equational logic programming in Eqlog”, Abo Academy, Turku, Finland, November 1993.
- “A model-theoretic approach to rewriting”, University of Turku, Finland, November 1993.
- “Hiding and Behaviour: an Institutional Approach”, ISCORE group meeting, Oxford, England, March 1993.
- “The Equational Logic Programming project in Oxford”, Edinburgh LFCS, Scotland, February 1992.
- “The Formal Completeness of Equational Logics”, London Mathematical Society conference on Applications of Categories to Computer Science, Durham, England, July 1991.
- “Logical Support for Modularisation”, Amsterdam University, Netherlands, January 1992.
- “Logical Support for Modularisation”, joint COMPASS and WADT workshop, Dourdan, France, August 1991.
- (with Joseph Goguen) “Logical Support for Modularisation”, Workshop of ESPRIT project in Logical Frameworks, Edinburgh, Scotland, May 1991.
- “Equational Logic Programming”, PRG Oxford University Computing Laboratory meeting on Future Research Directions, England, April 1991.
- “Free Monads in the Hypercategory of All the Monads”, East European Category Seminar 1990, Predela, Bulgaria, March 1990.

## **RESEARCH GRANTS:**

### **PROJECT DIRECTOR:**

- 2017–2018: “[Formal Verification of Reconfigurable Systems](#)” (CNCSIS\* grant PN-III-P2-2.1-PED-2016-0494)  
 2011–2016: “[Universal Logic Methods in Computer Science](#)” (CNCSIS grant PN-II-ID-PCE-2011-3-0439)  
 2006–2008: “Model theory for formal specification” (CNCSIS grant)  
 2003–2004: “Logical models for system and software engineering” (GAR<sup>†</sup>)  
 . 1995: “Modular and extensible constraint logic programming” (GAR)

### **PARTNER TEAM LEADER:**

- 2013–2016: “[Generalizing Truth-functionality](#)” (project 318986/FP7-PEOPLE-2012-IRSES of EC<sup>‡</sup>)  
 . 1998: “Environment for algebraic specification on distributed architectures of highly reliable software systems”<sup>§</sup>

## **TEACHING:**

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\*National Council for Scientific Research

<sup>†</sup>Romanian Academy Grant for basic research in information science and technology

<sup>‡</sup>European Commission

<sup>§</sup>grant of Ministry of Research and Technology for scientific collaboration between Romania and Japan

- Director of Master (by research) programme in *Logic and Formal Specification*, SNSB, 2004-2011. (students of this programme have published 6 research papers in top international journals)
- “Structuring specifications and programs”, SNSB 2008.
- “Model theory for specification and programming”, SNSB 2005-2006.
- “Mathematical foundations of Algebraic Specification”, SNSB, 2002-2006, 2008, 2010.
- “Formal Specification and Verification Methodologies”, SNSB 2005, 2007, 2009-2010, Master in Informatics at Universities of Bucharest, 2003-2004 and Ploiești, 2011-2012.
- “Heterogenous Multi-Logic Specification”, SNSB, 2004.
- “Logic Programming”, SNSB, 2003.
- “Introduction to Algebraic Specification”, Inter-University Program in Graduate Studies in *Logic and Theory of Algorithms and Computation*, University of Athens, Greece, March 2003.
- “Theory of Institutions”, MSc in Computing, Faculty of Mathematics, University of Bucharest, 2000.
- “Formal Languages and Automata”, undergraduate, Faculty of Mathematics and Informatics, University of Ploiești, 1995.
- “Equational Logic Programming”, MSc in Computing, Faculty of Mathematics, University of Bucharest, 1995.

### **SCIENTIFIC EVENTS:**

- Organiser and local chair of *22nd International Workshop on Algebraic Development Techniques*, Sinaia, Romania, 4-7 September 2014.
- Co-chair and organizer of *Sinaia School on Formal Verification of Software Systems*, 3-10 March 2008. (co-chairs: R. Diaconescu and K. Futatsugi)
- Co-chair and organizer of *Third Romanian-Japanese Algebraic Specification Workshop*, Sinaia, Romania, 2-3 April 2012. (co-chairs: R. Diaconescu and K. Futatsugi)
- Co-chair and organizer of *Second Romanian-Japanese Algebraic Specification Workshop*, Sinaia, Romania, 1-4 March 2011. (co-chairs: R. Diaconescu and K. Futatsugi)
- Co-chair and organizer of *First Romanian-Japanese Algebraic Specification Workshop*, Sinaia, Romania, August 1997. (co-chairs: R. Diaconescu and K. Futatsugi)
- Program Committee member at *ICTAC 2016*, Taipei, Taiwan.
- Program Committee member at *FOI 2015*, *MFOI 2016*, Chișinău, Moldova.
- Program Committee member at *IJSI 2015* (Special Issue of *Intl. J. of Software and Informatics* in Honor of Bernd Krieg-Brückner).
- Program Committee member at *ICAASE 2014*, *ICAASE 2016*, Constantine, Algeria.
- Program Committee member at *AMAST 2008*, Urbana, Illinois, USA.
- Program Committee member at *International Workshop on Rewriting Logic and its Applications (WRLA2000)*, Kanazawa, Japan, 2000.
- Program Committee member at OBJ/CafeOBJ/Maude satellite workshop at *World Congress of Formal Methods '99*, Toulouse, France, 1999.
- Program Committee member at Distributed Systems satellite workshop at *FCT'99 conference*, Iași, Romania, 1999.

### **STUDENTS:**

- co-advisor of Alexandre Madeira’s PhD thesis *Foundations and Techniques for Software Reconfigurability – an institution-independent approach for specifying and reasoning about reconfigurable systems*, [MAP-i](#) (joint doctoral programme in informatics of the universities Minho, Aveiro and Porto), Portugal, 2013 – winner the *IBM Scientific Award 2013*.
- member of the committee for Fabrice Barbier’s PhD thesis *Généralisation et préservation au travers de la combinaison des logiques des résultats de théorie des modèles standards liés à la structuration des spécifications algébriques*, University Evry, France, 2005.
- member of the committee for Daniel Găină’s PhD thesis *Theorem proving and institutions*, Japan Advanced Institute for Science and Technology, 2009.
- advisor of Ionuț Țuțu’s MSc thesis *On the Instantiation of Multiple Parameterized Specifications*, SNSB, 2012.
- advisor of Marius Petria’s MSc thesis *Abstract Beth definability institutionally*, SNSB, 2005.

- advisor of Mihai Codescu’s MSc thesis *Model theory for higher order logic with Henkin semantics*, SNSB, 2007.
- advisor of Daniel Găină’s MSc thesis *Layered Completeness*, SNSB, 2006.
- advisor of Denisa Diaconescu’s MSc thesis *Model theory for multiple valued logic*, SNSB, 2009.
- co-advisor of Traian-Florin Șerbănuță’s MSc thesis *Institutions and logic programming compiling*, Univ Bucharest, 2004.

#### **COMMITTEES:**

- Scientific Council of IMAR (2012 –)
- Scientific Council of “Școala Normală Superioară” Bucharest (2002 –)
- head of the [CNATDCU](#)<sup>¶</sup> Commission for Informatics (2017 –)
- bureau of the CNATDCU Commission for Informatics (2011–2012)
- head of the CNATDCU Contestation Commission for Informatics (2012–2016)
- *AdAstra* representative in the selection Committee for the CNATDCU Commission for Informatics (2016)

#### **SYSTEMS:**

- (1) Designer of CafeOBJ,<sup>||</sup> an industrial strength multi-logic heterogenous algebraic language, successor of the OBJ, and directly incorporating some modern developments in algebraic specification such as behavioural specification and rewriting logic.
- (2) Built the first prototype of EQLOG, an equational and constraint logic programming system with subtypes and generic modules, extending the OBJ3 system.

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<sup>¶</sup>National Council for Attesting Titles, Diplomas and Certificates

<sup>||</sup>Developed at the Japan Advanced Institute for Science & Technology; supported on a large scale by the Japanese Government through its Information-technology Promotion Agency.