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CURRICULUM VITAE

Personal data

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Born: May 10, 1956, Knyszyn, Poland
Present positions: Professor ordinarius,
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Education — scientific degrees

M.Sc.	1979	Faculty of Mathematics, Computer Science and Mechanics, University of Warsaw, Warsaw
Ph.D.	1982	Institute of Computer Science, Polish Academy of Sciences, Warsaw
D.Sc.	1987	Institute of Computer Science, (Polish: doktor habilitowany) Polish Academy of Sciences, Warsaw
Prof.	1998	The President of Poland (the scientific title of Professor of mathematical sciences)

Employments

1979 – 82 Researcher (PhD student) in the Mathematical Institute of the Polish Academy of Sciences, Warsaw
since 1982 Researcher, then Lecturer (Polish: adiunkt), Reader (Polish: docent) and since 1998 Professor in
the Institute of Computer Science of the Polish Academy of Sciences, Warsaw;
1987–97: head of the Group for Foundations of Software Engineering
(since 1997: part-time employment)
since 2007: Chairman of the Scientific Council of the Institute

1983 – 85 Researcher in the Department of Computer Science of the University of Edinburgh
since 1992 Professor extraordinarius and since January 2000 Professor ordinarius in the Institute of Informat-
ics of the University of Warsaw;
1996 – 2005: Director of the Institute of Informatics
since 2005: Chairman of the Institute Council

Longer scientific stays abroad

- Department of Computer Science, University of Edinburgh, Ediburgh, U.K., April 1983 – June 1985, Research Assistant.
- Center for the Study of Languages and Information, Stanford University, Stanford, U.S.A., January/February 1985, Visiting Researcher.

- Department of Mathematics and Statistics, McMaster University, Hamilton, Canada, March 1986, Visiting Researcher.
- Laboratory for Foundations of Computer Science, Department of Computer Science, University of Edinburgh, Edinburgh, U.K., September – November 1987, Visiting Researcher, and July – September 1988, SERC Senior Visiting Fellow.
- Department of Computer and System Science, Linköping University, Linköping, Sweden, January – March 1989, Visiting Associate Professor.
- Department of Computer Science, Technical University of Denmark, Lyngby, Denmark, October – December 1989, Visiting Associate Professor.
- Department of Computer Science, University of Manchester, Manchester, U.K., May – July 1990 and April – June 1991, Senior Visiting Research Fellow.
- Department of Computer Science, University of Edinburgh, U.K., October 1992 – September 1993, SERC Senior Visiting Fellow.
- Département de Mathématique et d’Informatique, Ecole Normale Supérieure, Paris, France, June/July 1994, Visiting Professor.
- Department of Informatics, University of Bergen, Norway, July – September 1995, Visiting Professor.
- Department of Computer Science, University of Edinburgh, U.K., May – August 1996, Visiting Researcher.
- Laboratoire de Spécification et Vérification, Ecole Normale Supérieure de Cachan, Cachan, France, February 2004 and May 2006, Visiting Professor.
- Department of Computer Science, University of Illinois at Urbana-Champaign, Illinois, USA, July 2008, Visiting Scholar.
- School of Informatics, University of Edinburgh, July – August 2010, SICSA Distinguished Visiting Fellow.

Scientific activities

In 1979-82 I worked mainly on the theory of correct program derivation (by means of sound transformation rules). I proposed then a language of so-called specified programs with standard structuring constructs as a basis for such derivation [6]. At the same time I started to work on denotational semantics. I translated into Polish the book by M. Gordon, “Denotational Description of Programming Languages”, and participated in the development of the “naive” model for denotational semantics [1].

Since 1983 my scientific interests cover, roughly, the theory of software specification, verification and development. This includes my joint work with D. Sannella aimed at a generalisation, clarification and further elaboration of some fundamental ideas of algebraic specification and program development, covering such concepts as specification structure and structuring mechanisms, behavioural equivalence, specification refinement and implementation, parameterisation, *etc* [2, 4, 9, 14, 15, 16, 30, 91, 28, 66]. Our current views on many of these topics have been presented in [32, 41, 66] (cf. [45]).

The problems of the behavioural interpretation of specifications and the role of behavioural concepts in software specification and development deserve a special mention here; results included an abstract formulation of the concepts involved in the framework of a rather arbitrary category of models, proofs of some facts linking various approaches to behavioural interpretation of specifications at this abstract level, as well as application of this ideas in specific algebraic frameworks [37, 95, 71]. The ideas on behavioural interpretation of specifications have also been applied in the framework of higher-order algebras (Henkin models with pre-logical relations) [48]. The problems of behavioural interpretation of specifications re-emerged in the context of systematic development of modular programs [56, 68].

This general research on algebraic specification spurred the design of a high-level specification language **Extended ML** (built on the modularisation facilities of the programming language **Standard ML**) viewed as a framework for systematic construction of correct **Standard ML** programs from algebraic specifications in a computer-supported programming environment [5, 13, 22, 89, 27, 92, 33, 35, 94]. This also led to a study of the relationship between the usual interpretation of specifications using abstract, mathematical models and their interpretation based on models inherent in real programming languages [39].

Most of this work has been carried out in the very general setting of an arbitrary institution (which formalizes the concept of an arbitrary logical system). This led to my interest in general logical frameworks, including my research on more theoretical aspects of the theory of institutions based on the techniques of category theory and on the model-theoretic view of logical systems [3, 7, 10, 12, 38], and of the Edinburgh logical framework **LF** based on the techniques of type-theory and on the proof-theoretic view of logical systems [23, 25, 34]. Ideas that might lead to a new, institution-like general notion of a logical system and of a morphisms between them are presented in [65, 73]. Within this area my interests concentrate on the possibilities of building complicated logical systems and their

encodings in some “universal logics” in a systematic, structured way, which motivates the importance of a number of fundamental results on (co)completeness of various categories of logical systems [38, 40, 42]. Another direction here is the development of foundations for the use truly heterogeneous specifications which span a number of logical systems [38, 43, 72], with a heterogeneous view of the semantics of UML as one major application [70].

The work on algebraic specification and on logical frameworks included specific technical results concerning particular algebraic systems, for example those based on so-called continuous algebras [8, 11, 19] and higher-order algebras [18, 21], as well as some aspects of category theory [24].

I took part in the *MetaSoft* project, aimed at the development of a support system for software development based on the ideas of (naive) denotational semantics and algebraic specification. Within the project I have proposed modularisation facilities for the *MetaSoft* definitional language, allowing the *MetaSoft* specifications to be written in a structured manner [31, 93] (with [31] offering an early proposal for what later became known as opaque and transparent types in module interfaces). A related work on domain universes for VDM led to a model used as a basis for the standard BSI/VDM specification language [26]. Other parts of this work involved the development of a three-valued logic [20], and a study of certain problems concerning derivation of an appropriate concrete syntax for a given semantic definition of a system [29].

An important part of my professional activity was my involvement in the Common Framework Initiative CoFI. This open collaborative effort led to the development of a common specification language CASL with a complete semantics, underlying methodology of formal program development, proof techniques and support tools, based on the critical selection of the best ideas developed within the field of algebraic specification [50, 69]. One novel feature of CASL is the use of *architectural specifications* to prescribe the modular structure of the specified system [44, 54, 64], with non-trivial interaction with behavioural view of specifications [56, 68]. I coordinated the work of the CoFI semantics group, giving a complete formal semantics to CASL, and to its architectural specifications in particular [96, 51, 52, 53, 55].

Academic and other professional activities

- **Conference talks:** over 70 talks at international conferences, workshops, summer schools, *etc* (including 8 invited lectures at international conferences).
- **Seminars:** over 60 seminars in various computer science centers (including for instance: Universities of Edinburgh, Manchester, Oxford, Cambridge, Strathclyde University in Glasgow and Imperial College in London; Bremen, Passau, Dortmund, Munich, Saarbruecken and Würzburg Universities, Technical Universities of Munich and Braunschweig; Aarhus and Copenhagen Universities, Technical University of Denmark in Lyngby; Stockholm, Linköping and Lund Universities, Chalmers University of Technology in Göteborg; Universities of Bergen and Oslo; C.N.R. Institutes of Computer Science in Pisa and in Rome; Universities Paris VII, Paris-Sud in Orsay, Ecole Normale Supérieure in Paris and Ecole Normale Supérieure in Cachan; University of Lisbon and Instituto Superiore Tecnico in Lisbon; Stanford University, Cornegie-Mellon University in Pittsburgh and University of Illinois at Urbana-Champaign; McMaster University in Hamilton; Catholic University of Rio de Janeiro; University of Buenos Aires; Peking University and University for Aviation and Astronautics in Beijing; the Indian Institute of Science in Bangalore).
- **University courses:** several courses on universal algebra, category theory and their applications in computer science, algebraic specifications and the theory of formal specifications and software development, the theory of institutions, program semantics and verification, and functional programming in **Standard ML**; mostly taught at Faculty of Mathematics, Computer Science and Mechanics, University of Warsaw, but also at Department of Computer Science, University of Edinburgh, U.K., and Department of Computer and System Science, Linköping University, Sweden.
- **Short courses:** a number of industry-oriented and academic short courses on universal algebra and category theory in computer science, modular programming, and software specification and development, thought at Laboratory for Foundations of Computer Science, University of Edinburgh, U.K., Department of Computer Science, Technical University of Denmark, Lyngby, Denmark, and Istituto di Analisi dei Sistemi ed Informatica, C.N.R., Rome, Italy, as well as at a number of summer schools.
- **Membership in scientific and professional organisations:**
 - Academia Europea (Informatics Section, since 2006)
 - European Association for Theoretical Computer Science (EATCS, council member since 2003)
 - European Association of Software Science and Technology (EASST)
 - IFIP WG 2.2 “Formal Description of Programming Concepts” (since 1987; scientific secretary 1995–2002)
 - IFIP WG 1.3 “Foundations of Software Specification” (since 1991, founding member)
 - IFIP TC 1 “Foundations of Computer Science” (since 2002)

- **Editorial boards of international journals:**

- Fundamenta Informaticae, since 1990
- Information Processing Letters, since 1998 (managing editor since 2004)
- Logical Methods in Computer Science, since 2004
- Electronic Communications of the EASST, since 2006

- **Steering committees:**

- WADT: Workshops on Algebraic Development Techniques (since 1995)
- ETAPS: European Joint Conferences on Theory and Practice of Software (2001–2004)
- CALCO: Conference on Algebra and Coalgebra in Computer Science (since 2004)

Invited lectures

- **conferences and symposia:**

- “Software-system development: an abstract view”, IFIP Congress 1986, Dublin, September 1986 (invited response).
- “Logic representation in LF”, 3rd International Conference on Category Theory and Computer Science, CTCS’89, Manchester, September 1989.
- “Modules for a model-oriented specification language: a proposal for MetaSoft”, 4th European Symposium on Programming and 17th Colloquium on Trees in Algebra and Programming, ESOP/CAAP’92, Rennes, February 1992.
- “Toward formal development of programs from algebraic specifications: model-theoretic foundations”, 19th International Colloquium on Automata, Languages and Programming, ICALP’92, Vienna, July 1992.
- “Moving between logical systems”, 2nd Conference on Computer Science Logic, CSL’94, Kazimierz, Poland, September 1994.
- “Towards heterogeneous specifications”, International Conference on Frontiers of Combining Systems, Fro-CoS’98, Amsterdam, October 1998.
- “Global Development via Local Observational Construction Steps”, 27th International Symposium on Mathematical Foundations of Computer Science, MFCS’02, Warsaw-Otwock, August 2002.
- “Toward specifications for reconfigurable component systems”, 28th International Conference on Application and Theory of Petri Nets and Other Models of Concurrency, Petri Nets’07, Siedlce, June 2007.

- **workshops:**

- “Specifications in an arbitrary institution”, International Workshop on Semantics of Programming Languages, Bad Honnef, March 1985.
- “Bits and pieces of the theory of institutions”, International Workshop on Category Theory and Computer Programming, Guildford, September 1985.
- “Behavioural satisfaction and equivalence in concrete model categories”, Dagstuhl Workshop on Specification and Semantics, Schloss Dagstuhl, July 1996.
- “Moving specifications between institutions”, Dagstuhl Workshop on Semi-Formal and Formal Specification Techniques for Software Systems, Schloss Dagstuhl, July 1998.
- “Architectural specifications in CASL”, Dagstuhl Workshop on Rigorous Analysis and Design for Software Intensive Systems, Schloss Dagstuhl, October 1999.
- “Software specification and development in heterogeneous environments”, 1st Workshop on Combination of Logics: Theory and Applications CombLog’04, Lisbon, July 2004.
- “CASL methodology” (with Till Mossakowski) Workshop on Specification and Design Methodologies for Adaptive and Embedded Systems, Indian Institute of Science, Bangalore, January 2005.
- “Institutions, abstract model theory and software specification”, Workshop on Applied and Computational Category Theory, ACCAT’06, Vienna, March 2006.

- **summer schools:**

- “Extended ML: a framework for formal development of modular Standard ML programs”, ACM State of the Art Summer School on Functional and Object Oriented Programming, September 8–14, 1996, Sobótka (Poland).

- “Institutions: an abstract framework for formal specifications” and “Formal development of modular software systems in Extended ML”, UNU IIST/IFIP WG 2.2 Beijing Seminar, Peking University, Beijing, September 28 – October 4, 1996.
- “Abstract Specification Theory”, Marktoberdorf Summer School 2002 “Models, Algebras, and Logic of Engineering Software”, July 30 – August 11, 2002, Marktoberdorf, Germany.
- “Foundations of Software Specification and Development: An Abstract Overview”, School of Informatic Sciences (Escuela de Ciencias Informaticas) ECI 2007, July 23 – 28, 2007, Buenos Aires, Argentina.

Conference organisation activities

- 16th International Symposium on Mathematical Foundations of Computer Science MFCS’91, Kazimierz, Poland, 1991 (PC chair, OC co-chair)
- Formal Specification: Foundations, Methods, Tools and Applications FMTA’95, Konstancin-Jeziorna, Poland, 1995 (co-organiser).
- European Joint Conferences on Theory and Practice of Software ETAPS’03, Warsaw, Poland, 2003 (general co-chair).
- 13th Annual Conference of the European Association for Computer Science Logic CSL 2004, Karpacz, Poland, 2004 (PC co-chair).
- 13th International Symposium on Formal Methods FM 2005, Newcastle, UK, 2005 (PC co-chair).
- 34th International Colloquium on Automata, Languages and Programming ICALP’07, Track B, Wrocław, Poland, 2007 (PC chair).
- 3rd Conference on Algebra and Coalgebra in Computer Science CALCO 2009, Udine, Italy, 2009 (PC co-chair).

Participation in programme committees of international conferences

- 16th International Colloquium on Automata, Languages and Programming ICALP’89, Stresa, Italy, 1989.
- 2nd International Conference on Algebraic and Logic Programming ALP’90, Nancy, France, 1990.
- IFIP TC 2 Working Conference on Constructing Programs from Specifications, California, 1991.
- 16th International Symposium on Mathematical Foundations of Computer Science MFCS’91, Kazimierz, Poland, 1991.
- 19th International Colloquium on Automata, Languages and Programming ICALP’92, Vienna, Austria, 1992.
- 7th IEEE Symposium on Logics in Computer Science LiCS’92, Santa Cruz, USA, 1992.
- Colloquium on Formal Approaches of Software Engineering FASE, 4th International Joint Conference on the Theory and Practice of Software Development TapSoft’93, Orsay, France, 1993.
- 3rd International Conference on Algebraic Methodology and Software Technology AMAST’93, Twente, The Netherlands, 1993.
- IFIP TC2 Working Conference on Programming Concepts, Methods and Calculi, San Miniato, Italy, 1994.
- 5th European Symposium on Programming ESOP’94, Edinburgh, UK, 1994.
- 19th International Symposium on Mathematical Foundations of Computer Science MFCS’94, Kosice, Slovakia, 1994.
- 4th International Conference on Algebraic Methodology and Software Technology AMAST’95, Montreal, Canada, 1995.
- Formal Specification: Foundations, Methods, Tools and Applications FMTA’95, Konstancin-Jeziorna, Poland, 1995 (co-organiser).
- 7th European Symposium on Programming ESOP’96, Linköping, Sweden, 1996.
- 21st International Symposium on Mathematical Foundations of Computer Science MFCS’96, Cracow, Poland, 1996.
- 5th International Conference on Algebraic Methodology and Software Technology AMAST’96, Munich, Germany, 1996.
- 5th International Conference on Algebraic and Logic Programming ALP’96, Aachen, Germany, 1996.
- International Symposium “Formal Methods Europe” FME’97, Graz, Austria, 1997.

- “Computer Science Logic” CSL’97, Aarhus, Denmark, 1997.
- 6th International Conference on Algebraic Methodology and Software Technology AMAST’97, Sydney, Australia, 1997.
- IFIP Working Conference on Programming Concepts and Methods PROCOMET’98, Shelter Island, New York, USA, 1998.
- 25th International Colloquium on Automata, Languages and Programming ICALP’98, Aalborg, Denmark, 1998.
- 7th International Conference on Algebraic Methodology and Software Technology AMAST’98, Manaus, Brazil, 1999.
- 6th International Conference on Logic for Programming and Automated Reasoning LPAR’99, Tbilisi, Georgia, 1999.
- World Congress on Formal Methods in the Development of Computing Systems FM’99, Toulouse, France, 1999 (co-chair of the mini-track “Formal Description of Programming Concepts”).
- International Conference on Foundational Approaches to Software Engineering FASE’2000, within European Joint Conferences on Theory and Practice of Software ETAPS’2000, Berlin, Germany, 2000.
- 8th International Conference on Algebraic Methodology and Software Technology AMAST’2000, Iowa City, Iowa, USA, 2000.
- IFIP International Conference on Theoretical Computer Science IFIP TCS2000, Tohoku University, Sendai, Japan, 2000.
- International Conference on Foundations of Software Science and Computation Structures FoSSaCS’02, within European Joint Conferences on Theory and Practice of Software ETAPS’02, Grenoble, France, 2002.
- 2nd IFIP Conference on Theoretical Computer Science, within IFIP World Computer Congress WCC2002, Montreal, Canada, 2002.
- 9th International Conference on Algebraic Methodology and Software Technology AMAST’2002, La Reunion, 2002.
- International Conference on Foundations of Software Science and Computation Structures FoSSaCS’04, within European Joint Conferences on Theory and Practice of Software ETAPS’04, Barcelona, Spain, 2004.
- 11th International Conference on Algebraic Methodology and Software Technology AMAST’2004, Stirling, UK, 2004.
- 13th Annual Conference of the European Association for Computer Science Logic CSL 2004, Karpacz, Poland, 2004.
- 13th International Symposium on Formal Methods FM 2005, Newcastle, UK, 2005.
- 1st Conference on Algebra and Coalgebra in Computer Science, CALCO 2005, Swansea, Wales, UK, 2005.
- International Conference on Dependable Systems, Services and Technologies, DESSERT 2006, Poltava, Ukraine, 2006.
- 8th IFIP WG 6.1 working conference on Formal Methods for Open Object-based Distributed Systems, FMOODS 2006, Bologna, Italy, 2006.
- 11th Int. Conference on Algebraic Methodology and Software Technology, AMAST 2006, Kuressaare, Estonia, 2006.
- 33rd Int. Conference on Current Trends in Theory and Practice of Computer Science, SOFSEM 2007, Prague, Czech Republic, 2007.
- 34th International Colloquium on Automata, Languages and Programming ICALP’07, Track B, Wrocław, Poland, 2007.
- 2nd Conference on Algebra and Coalgebra in Computer Science, CALCO 2007, Bergen, Norway, 2007.
- 15th International Symposium on Formal Methods FM 2008, Turku, Finland, 2008.
- 12th International Conference on Algebraic Methodology and Software Technology, AMAST 2008, Urbana, Illinois, USA, 2008.
- 33rd International Symposium on Mathematical Foundations of Computer Science MFCS 2008, Toruń, Poland, 2008.
- 3rd Conference on Algebra and Coalgebra in Computer Science CALCO 2009, Udine, Italy, 2009.
- 16th International Symposium on Formal Methods FM 2009, Eindhoven, the Netherlands, 2009.

- 6th IFIP International Conference on Theoretical Computer Science IFIP-TCS 2010, Brisbane, Australia, 2010.
- 13th International Conference on Algebraic Methodology and Software Technology, AMAST 2010, Lac-Beauport, Quebec, Canada, 2010.
- 35th International Symposium on Mathematical Foundations of Computer Science MFCS'10, Brno, Czech Republic, 2010.
- 17th International Symposium on Formal Methods FM 2011, Limerick, Ireland, 2011.
- 4th Conference on Algebra and Coalgebra in Computer Science CALCO 2011, Winchester, UK, 2011.

PhD supervision

- Paweł Grzegorzewicz, “Metoda konstruowania programów współbieżnych niezagrożonych blokadą” (“A Method for Formal Development of Deadlock-free Concurrent Programs”), Institute of Computer Science, Polish Academy of Sciences, Warsaw, 1996.
- Sławomir Lasota, “Algebraic Observational Equivalence and Open-map Bisimilarity”, Faculty of Mathematics, Informatics and Mechanics, Warsaw University, 2000.
- Wiesław Pawłowski, “Kontekstowe systemy logiczne w podstawach specyfikacji i konstruowania programowania” (“Context Institutions in Foundations of Software Specification and Development”) Institute of Computer Science, Polish Academy of Sciences, Warsaw, 2000.
- Tomasz Borzyszkowski, “Systemy logiczne dla specyfikacji strukturalnych” (“Logical Systems for Structured Specifications”) Faculty of Mathematics, Informatics and Mechanics, University of Warsaw, 2000.
- Piotr Hoffman, “Architectural Specifications and their Verification”, Faculty of Mathematics, Informatics and Mechanics, Warsaw University, 2005.
- Mikołaj Konarski, “Application of Category-Theory Methods to the Design of a System of Modules for a Functional Programming Language” Faculty of Mathematics, Informatics and Mechanics, Warsaw University, 2007.

Scientific degree refereeing (PhD external examiner)

- Marek Gondzio “Rozszerzenie języka mikroprogramowania MIDDLE o mechanizmy współbieżności (przedstawione na gruncie semantyki denotacyjnej)” (“An Extension of the Microprogramming Language MIDDLE by Concurrency Mechanisms (Presented Using Denotational Semantics)”), Institute of Informatics, Technical University of Warsaw, 1988.
- Danuta Szczepańska-Wasersztrum, “Programy z mechanizmami obsługi wyjątków i ich analiza z zastosowaniem zmodyfikowanej metody Hoare’a” (“Programs with Exception Mechanisms and their Analysis with the Use of a Modified Hoare Method”), Faculty of Mathematics, Computer Science and Mechanics, University of Warsaw, 1990.
- Jordi Farrés-Cassals, “Verification in ASL and Related Specification Languages”, Department of Computer Science, University of Edinburgh, 1992.
- Michał Grabowski, “Relatywna pełność w ujęciu abstrakcyjnym” (“Relative Completeness in an Abstract Setting”), Faculty of Mathematics, Computer Science and Mechanics, University of Warsaw, 1992 (D.Sci, in Polish: doktor habilitowany).
- Gilles J. Barthe, “Term Declaration Logic and Generalised Composita”, Department of Computer Science, University of Manchester, 1993.
- Maura Cerioli, “Relationship between Logical Formalisms”, Genova, 1993.
- Teodor Knapik, “Spécifications algébriques observationnelles modulaires: une sémantique fondée sur une relation de satisfaction observationnelle” (“Observational Modular Algebraic Specifications: Semantics based on an Observational Satisfaction Relation”), Laboratoire de Recherche en Informatique, L’Université de Paris-Sud, Centre D’Orsay, Orsay, 1993.
- Peter Gørm Larsen, “Towards Proof Rules for the Full Standard VDM Specification Language”, Department of Computer Science, Technical University of Denmark, Lyngby, 1995.
- Włodzimierz Drabent, “What is a Failure? An Approach to Constructive Negation”, Institute of Computer Science, Polish Academy of Sciences, 1995 (D.Sci, in Polish: doktor habilitowany).
- Till Mossakowski, “Representations, Hierarchies, and Graphs of Institutions”, Fachbereich Mathematik und Informatik, Universitaet Bremen, 1996.

- Marcin Benke, “Complexity of Type Reconstruction in Programming Languages with Subtyping”, Faculty of Mathematics, Computer Science and Mechanics, University of Warsaw, 1998.
- Roberto Bruni, “Tile Logic for Synchronized Rewriting of Concurrent Systems”, Università di Pisa, 1999.
- Krzysztof Stencel, “Abstrakcyjne specyfikacje z jawnym nośnikiem modelu” (“Abstract Specifications with Explicit Model Carrier”), Faculty of Mathematics, Computer Science and Mechanics, University of Warsaw, 1999.
- Grzegorz Bińczak, “Charakteryzacja klas algebr częściowych definiowalnych przez słabe równości” (“A Characterisation of Weak Varieties of Partial Algebras”), Faculty of Mathematics, Computer Science and Mechanics, University of Warsaw, 2000.
- Aleksy Schubert, “Zastosowanie unifikacji do problemów wyprowadzania typów” (“Applying Unification to Type Reconstruction Problems”), Faculty of Mathematics, Computer Science and Mechanics, Warsaw University, 2001.
- Marcin Młotkowski, “Specification and Optimization of Smalltalk Programs”, Faculty of Mathematics and Informatics, Wrocław University, 2001.
- Paweł Urzyczyn, Faculty of Mathematics, Computer Science and Mechanics, University of Warsaw, 2002 (the scientific title of Professor).
- Ludwik Czaja, Faculty of Mathematics, Computer Science and Mechanics, University of Warsaw, 2002 (the scientific title of Professor).
- Marek Zawadowski, “Sheaves, Games and Model Completions”, Faculty of Mathematics, Computer Science and Mechanics, University of Warsaw, 2003 (D.Sci, in Polish: doktor habilitowany).
- Till Mossakowski, “Heterogeneous Specification and the Heterogeneous Tool Set”, Fachbereich Mathematik und Informatik, Universitaet Bremen, 2005 (Habilitation).
- Marcin Engel “Metoda badań poprawności specyfikacji tropowych” (“A Method of Checking Corectness of Specifications in the Trace Assertion Method”). Faculty of Mathematics, Computer Science and Mechanics, Warsaw University, 2005.
- Carlos Gustavo Lopez Pombo “Fork Algebras as a Tool for Reasoning across Heterogeneous Specifications”, Departamento de Computacion, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, 2007.
- Marek A. Bednarczyk, “Modularne metody tworzenia i automatyczna synteza programów współbieżnych i rozproszonych — teorio-kategoryjny punkt widzenia” (“Modular Methods of Construction and Automatic Synthesis of Concurrent and Distributed Programs — A Categorical Viewpoint”), Institute of Computer Science, Polish Academy of Sciences, 2007 (D.Sci, in Polish: doktor habilitowany).
- Wiktor Zychła, “eXtensible Multi Security: Security Framework for .NET”, Faculty of Mathematics and Informatics, University of Wrocław, 2008.
- Damian Niwiński, Faculty of Mathematics, Computer Science and Mechanics, University of Warsaw, 2009 (the scientific title of Professor).
- Jerzy Marcinkowski, Faculty of Mathematics and Informatics, University of Wrocław, 2010 (the scientific title of Professor).
- Jarosław Kuśmierk, “A Mixin Based Object-Oriented Calculus: True Modularity in Object Oriented Programming”, Faculty of Mathematics, Computer Science and Mechanics, University of Warsaw, 2010.
- Marius Petria, “Generic refinements for behavioral specifications”, School of Informatics, The University of edinburgh, 2010.

Research grants

- COMPASS I and II: “A Comprehensive Algebraic Approach to System Specification and Development”, March 1989 – February 1992 and October 1992 – March 1996. Working Group funded by European ESPRIT Basic Research programme (formally: scientific correspondent, acting as a Warsaw site leader with budget about 15kECU).
- “Formalne metody konstruowania systemów oprogramowania” (“Formal Methods of Software Development”), May 1993 – April 1996. KBN (Polish State Committee for Scientific Research) grant 2P30100704 (grant holder, budget about 60kECU).
- MEDICIS: “Methodology for the Development of Computer Systems Specification”, February 1994 – April 1996. Scientific cooperation network funded by European HCM and PECO programmes (ICS PAS site leader with budget about 100kECU).

- EuroFoCS: “European Institute for Foundations of Computer Science”, July 1995 – July 1997. Scientific cooperation network funded by European HCM and PECO programmes (Polish site leader with budget about 52kECU).
- “Foundations of Behavioural Specification and Development of Software Systems”, started January 1996, renewed annually until December 2002. Cooperation project within Franco-Polish cooperation programme CNRS-PAS (Warsaw group leader).
- “Logiczne aspekty metod specyfikacji i konstruowania systemów oprogramowania” (“Logical Aspects of Software Specification and Development Methods”) July 1996 – June 1999. KBN (Polish State Committee for Scientific Research) grant 8T11C01811 (grant holder, budget about 50kECU).
- LoSSeD: “Logics, Specifications and Software Development”, October 1997 – April 2000. Workpackage within CRIT-2 project funded by European ESPRIT and INCO programmes (project leader with budget about 45kEURO; Warsaw University partner coordinator with budget about 115kEURO).
- CoFI WG: “Common Framework Initiative”, October 1998 – April 2001, ESPRIT Working Group 29432 (semantics coordinator, Warsaw site leader, coordinator for cooperation with Central and Eastern European countries, with budget 18kEURO).
- “Obserwacyjna równoważność programów i struktur danych a bisymulacja procesów współbieżnych” (“Behavioural Equivalence of Programs and Data Structures vs. Bisimulation of Concurrent Processes”) January 1998 – December 1999, KBN (Polish State Committee for Scientific Research) grant 8T11C04614, PhD support grant for S. Lasota (grant holder, budget about 8kEURO).
- “Abstrakcyjna teoria specyfikacji i jej zastosowania” (“Abstract Specification Theory and Its Applications”) August 2001 – July 2004. KBN (Polish State Committee for Scientific Research) grant 7T11C00221 (grant holder, budget about 80kEURO).
- “Specifying and Verifying Properties of Mobile Code”, January 2002 – June 2005. Cooperation project within British-Polish Research Partnership Programme (Warsaw group leader).
- AGILE: “Architectures for Mobility”, August 2002 – April 2005, project IST-2001-32747 funded by European IST/FET programme within “Global Computing” initiative (Warsaw site leader with budget 148kEURO, with additional support from KBN of about 34kEuro).
- ETAPS’03: “European Joint Coinferences on Theory and Practice of Software 2003”, project IST-2001-92523 funded by European IST 5FP programme and project HPCF-CT-2002-00088 funded by European HSC 5FP, grants to support ETAPS 2003 conference organization and participants (grantholder, budget 28kEURO and 48kEURO, respectively, with additional support from KBN of about 12kEuro).
- SENSORIA: “Software Engineering for Service-Oriented Overlay Computers”, September 2005 – February 2010, project IST-2005-016004 funded by European FET programme within “Global Computing II” initiative (Warsaw site leader with budget 304kEURO, with additional support from Polish MNiSW of about 102kEuro).
- MOBIUS: “Mobility, Ubiquity and Security for Small Devices”, September 2005 – August 2009, project IST-2005-015905 funded by European FET programme within “Global Computing II” initiative (Warsaw site leader with budget 154kEURO, with additional support from Polish MNiSW of about 94kEuro).
- “Specyfikacja i weryfikacja systemów oprogramowania — od teorii do praktyki” (“Software specification and verification — from theory to practice”), April 2010 – March 2013, MNiSW (Polish Ministry of Science and Higher Education) grant N206 493138 (grant holder, budget about 120kEURO).

BIBLIOGRAPHY

1. (with A.Blikle) Naive denotational semantics.
Information Processing 83, Proc. IFIP Congress'83, Paris 1983, ed. R. Mason, 345–355, North-Holland 1983.
2. (with D. Sannella) Building specifications in an arbitrary institution.
Proc. Intl. Symposium on Semantics of Data Types, Sophia-Antipolis, France 1984, eds. G. Kahn, D.B. MacQueen, G. Plotkin, Lecture Notes in Computer Science 173, 337–356, Springer-Verlag 1984.
3. Free constructions in algebraic institutions.
Proc. Intl. Symposium on Mathematical Foundations of Computer Science MFCS'84, Prague, Lecture Notes in Computer Science 176, 526–534, Springer-Verlag 1984.
4. (with D. Sannella) On observational equivalence and algebraic specification.
Journal of Computer and System Sciences 34(1987), 150–178; extended abstract in *Proc. Intl. Conference on Theory and Practice of Software Development TAPSOFT'85*, vol.I, 10th Coll. on Trees in Algebra and Programming CAAP'85, Berlin, eds. H. Ehrig, C. Floyd, M. Nivat and J. Thatcher, Lecture Notes in Computer Science 185, 308–322, Springer-Verlag 1985.
5. (with D. Sannella) Program specification and development in Standard ML.
Proc. 12th ACM Symposium on Principles of Programming Languages POPL'85, New Orleans 1985, 67–77, ACM 1985.
6. A language of specified programs.
Science of Computer Programming 5(1985), 59–81.
7. On the existence of free models in abstract algebraic institutions.
Theoretical Computer Science 37(1985), 269–304.
8. (with M. Wirsing) Continuous abstract data types — basic machinery and results.
Proc. Intl. Conference on Fundamentals of Computation Theory FCT'85, Cottbus, ed. L. Budach, Lecture Notes in Computer Science 199, 431–441, Springer-Verlag 1985.
9. (with D. Sannella) Some thoughts on algebraic specification.
Recent Trends in Data Type Specification, Proc. 3rd Intl. Workshop on Theory and Application of Abstract Data Types, Bremen 1984, ed. H.-J. Kreowski, Informatik Fachberichte 116, 31–38, Springer-Verlag 1985.
10. Quasi-varieties in abstract algebraic institutions.
Journal of Computer and System Sciences 33(1986), 333–360.
11. (with M. Wirsing) Continuous abstract data types.
Fundamenta Informaticae 9(1986), 95–126.
12. Bits and pieces of the theory of institutions.
Proc. Intl. Workshop on Category Theory and Computer Programming, Guildford 1985, eds. D. Pitt, S. Abramsky, A. Poigné and D. Rydeheard, Lecture Notes in Computer Science 240, 334–363, Springer-Verlag 1986.
13. (with D. Sannella) Extended ML: an institution-independent framework for formal program development.
Proc. Intl. Workshop on Category Theory and Computer Programming, Guildford 1985, eds. D. Pitt, S. Abramsky, A. Poigné and D. Rydeheard, Lecture Notes in Computer Science 240, 364–389, Springer-Verlag 1986.
14. Software-system development: an abstract view.
Information Processing 1986, Proc. IFIP Congress'86, Dublin, ed. H.-J. Kugler, 685–688, North-Holland 1986.
15. (with D.Sannella) Specifications in an arbitrary institution.
Information and Computation 76(1988), 165–210.
16. (with D. Sannella) Toward formal development of programs from algebraic specifications: implementations revisited.
Acta Informatica 25(1988), 233–281; extended abstract in: *Proc. Intl. Joint Conference on Theory and Practice of Software Development TAPSOFT'87*, CAAP'87, Pisa, eds. H. Ehrig, R. Kowalski, G. Levi and U. Montanari, Lecture Notes in Computer Science 249, 96–110, Springer-Verlag 1987.
17. (with N. Dershowitz, L. Marcus) Existence, uniqueness and construction of rewrite systems.
SIAM Journal of Computing 17(1988), 629–639.
18. (with B. Möller, M. Wirsing) Algebraic specifications with built-in domain constructions.
extended abstract in: *Proc. 13th Coll. on Trees in Algebra and Computing CAAP'88*, Nancy, Lecture Notes in Computer Science 299, 132–148, Springer-Verlag 1988.

19. (with E. Nelson, J. Adamek, A. Jung, J. Reiterman) Comparison of subset systems.
Commentationes Mathematicae Universitatis Carolinae 29(1988), 169–177.
20. (with B. Konikowska, A. Blikle) A three-valued logic for software specification and validation.
Fundamenta Informaticae 14(1991), 411–453; an earlier version *VDM — The Way Ahead*, Proc. 2nd VDM-Europe Symp. VDM’88, Dublin 1988, eds. R. Bloomfield, L. Marshall, R. Jones, Lecture Notes in Computer Science 328, 218–242, Springer-Verlag 1988.
21. (with B. Möller, M. Wirsing) Algebraic specifications of reachable higher-order algebras.
in: [74], 154–169.
22. (with D. Sannella) Toward formal development of ML programs: foundations and methodology.
Proc. Coll. on Current Issues in Programming Languages, 3rd Joint Conference on Theory and Practice of Software Development, Barcelona, March 1989, eds. J. Díaz, F. Orejas, Lecture Notes in Computer Science 352, 375–389, Springer-Verlag 1989.
23. (with R. Harper, D. Sannella) Structure and representation in LF.
Proc. 4th IEEE Symposium on Logics in Computer Science LiCS’89, Asilomar, California 1989, 226–237.
24. (with R. Burstall, J. Goguen) Some fundamental algebraic tools for the semantics of computation. Part III: Indexed categories.
Theoretical Computer Science 91(1991), 239–264.
25. (with R. Harper, D. Sannella) Logic representation in LF.
Proc. Intl. Conf. Category Theory and Computer Science, Manchester, September 1989, eds. D. H. Pitt, D. E. Rydeheard, P. Dybjer, A. M. Pitts, A. Poigné, Lecture Notes in Computer Science 389, 250–272, Springer-Verlag 1989.
26. (with M. Wieth) A naive domain universe for VDM.
Proc. Intl. Symp. VDM’90, Kiel 1990, eds. D. Bjørner, C.A.R. Hoare, H. Langmaack, Lecture Notes in Computer Science 428, 552–579, Springer-Verlag 1990.
27. (with D. Sannella) Extended ML: Past, present and future.
Proc. 7th Intl. Workshop on Specification of Abstract Data Types, Wusterhausen/Dosse, Germany, April 1990, H. Ehrig, K. Jantke, F. Orejas, H. Reichel, eds., Lecture Notes in Computer Science 534, 297–322, Springer-Verlag 1991.
28. (with D. Sannella) A kernel specification formalism with higher-order parameterisation.
Proc. 7th Intl. Workshop on Specification of Abstract Data Types, Wusterhausen/Dosse, Germany, April 1990, H. Ehrig, K. Jantke, F. Orejas, H. Reichel, eds., Lecture Notes in Computer Science 534, 274–296, Springer-Verlag 1991.
29. (with A. Blikle, M. Thorup) On conservative extensions of syntax in system development.
in: *Images of Programming*, Dedicated to the memory of A. P. Ershov, D. Bjørner, V. Kotov, eds., 209–234, North-Holland 1991.
30. (with D. Sannella, S. Sokolowski) Toward formal development of programs from algebraic specifications: parameterisation revisited.
Acta Informatica 29(1992), 689–736.
31. Modules for a model-oriented specification language: a proposal for MetaSoft.
Proc. 4th European Symposium on Programming ESOP’92, Rennes, France, February 1992, Lecture Notes in Computer Science 582, 452–472, Springer-Verlag 1992.
32. (with D. Sannella) Toward formal development of programs from algebraic specifications: model-theoretic foundations.
Proc. 19th International Colloquium on Automata, Languages and Programming ICALP’92, Vienna, Austria, July 1992, Lecture Notes in Computer Science 623, 656–671, Springer-Verlag 1992.
33. (with S. Kahrs, D. Sannella) The semantics of Extended ML: A gentle introduction.
Proc. Intl. Workshop on Semantics of Specification Languages SoSL’93, Utrecht 1993, eds. D.J. Andrews, J.F. Groote, C.A. Middleborough, Workshops in Computing, 186–215, Springer-Verlag 1994.
34. (with R. Harper, D. Sannella) Structured theory presentations and logic representations.
Annals of Pure and Applied Logic 67(1994), 113–160.
35. (with S. Kahrs, D. Sannella) Interfaces in Extended ML.
Proc. ACM Workshop on Interface Definition Languages, Portland, January 1994, SIGPLAN Notices 29(1994), 111–118.

36. (with S. Kahrs, D. Sannella) The definition of Extended ML: A gentle introduction.
Theoretical Computer Science 173(1997), 445-484.
37. (with M. Bidoit) Behavioural satisfaction and equivalence in concrete model categories.
Proc. 20th Coll. on Trees in Algebra and Computing CAAP'96, Linköping, April 1996, H. Kirchner, ed., Lecture Notes in Computer Science 1059, 241–256, Springer-Verlag 1996.
38. Moving between logical systems.
Recent Trends in Data Type Specification. Selected Papers. 11th Workshop on Specification of Abstract Data Types ADT'95, Oslo, September 1995, M. Haveraaen, O.-J. Dahl, O. Owe, eds., Lecture Notes in Computer Science 1130, 478–502, Springer-Verlag 1996.
39. (with D. Sannella) Mind the gap! Abstract versus concrete models of specifications.
Proc. Intl. Symposium on Mathematical Foundations of Computer Science MFCS'96, Cracow, September 1996, W. Penczek, A. Szalas, eds., Lecture Notes in Computer Science 1113, 114–134, Springer-Verlag 1996.
40. (with T. Mossakowski, W. Pawłowski) Combining and representing logical systems.
Proc. 7th Intl. Conference on Category Theory and Computer Science CTCS'97, S. Margherita Ligure, September 1997, Lecture Notes in Computer Science 1290, 177–198, Springer-Verlag 1997.
41. (with D. Sannella) Essential concepts of algebraic specification and program development.
Formal Aspects of Computing 9(1997) 229–269.
42. (with T. Mossakowski, W. Pawłowski) Combining and representing logical systems using model-theoretic parchments.
Recent Trends in Data Type Specification. Selected Papers. 12th Workshop on Specification of Abstract Data Types ADT'97, Tarquinia, June 1997, F. Parisi-Presicce, ed., Lecture Notes in Computer Science 1376, 349–364, Springer-Verlag 1998.
43. Towards heterogeneous specifications.
Frontiers of Combining Systems 2, Proc. Intl. Conference Frontiers of Combining Systems FroCoS'98, Amsterdam, October 1998, D. Gabbay, M. van Rijke, eds., 337–360, Research Studies Press 2000.
44. (with M. Bidoit, D. Sannella) Architectural specifications in CASL.
Proc. 7th Intl. Conference on Algebraic Methodology and Software Technology AMAST'98, Manaus, Brasil, January 1999, A. Haeberer, ed., Lecture Notes in Computer Science 1548, 341–357, Springer-Verlag 1999.
45. (with D. Sannella) Algebraic Methods for Specification and Formal Development of Programs.
Computing Surveys Symposium on Theoretical Computer Science: A Perspective, Computing Surveys 31(1999) no. 3es.
46. (with D. Sannella) Algebraic Preliminaries.
In: *Algebraic Foundations of System Specification*, E. Astesiano, H.-J. Kreowski, B. Krieg-Brückner, eds., 13–30, Springer Verlag 1999.
47. Institutions: An Abstract Framework for Formal Specifications.
In: *Algebraic Foundations of System Specification*, E. Astesiano, H.-J. Kreowski, B. Krieg-Brückner, eds., 105–130, Springer-Verlag 1999.
48. (with F. Honsell, J. Longley, D. Sannella) Constructive data refinement in typed lambda calculus.
In: *Proc. 2nd Conf. on Foundations of Software Science and Computation Structures FoSSaCS'2000*, held within ETAPS'2000, Berlin, March 2000, J. Tiuryn, ed., Lecture Notes in Computer Science 1784, 161–177, Springer-Verlag 2000.
49. (with G. Mirkowska, A. Salwicki, M. Srebrny) First order specifications of programmable data types.
SIAM Journal on Computing, 30(2001), 2084-2096.
50. (with E. Astesiano, M. Bidoit, H. Kirchner, B. Krieg-Brückner, P. D. Mosses, D. Sannella) CASL: The Common Algebraic Specification Language.
Theoretical Computer Science, Special Issue on “Current trends in Algebraic Development Techniques”, vol. 286:2(2002), 153-196.
51. (with L. Schröder, T. Mossakowski, B. Klin, P. Hoffman) Semantics of architectural specifications in CASL.
In: *Proc. 2nd Conf. on Fundamental Aspects of Software Engineering FASE'01*, held within ETAPS'2001, Genova, March 2001, H. Hussman, ed., Lecture Notes in Computer Science 2029, 253–266, Springer-Verlag 2001.
52. (with L. Schröder, T. Mossakowski) Amalgamation in CASL via enriched signatures.
In: *Proc. 28th Intl. Coll. on Automata, Languages and Programming ICALP'01*, F. Orejas, P. Spirakis, J. van Leeuwen, eds., Lecture Notes in Computer Science 2076, 993–1004, Springer-Verlag 2001.

53. (with B. Klin, P. Hoffman, L. Schröder, T. Mossakowski) Checking Amalgamability Conditions for CASL Architectural Specifications. In: *Proc. 26th Intl. Symp. Mathematical Foundations of Computer Science MFCS'01*, J. Sgall, A. Pultr, eds., Lecture Notes in Computer Science 2136, 451–463, Springer-Verlag 2001.
54. (with M. Bidoit, D. Sannella) Architectural specifications in CASL. *Formal Aspects of Computing* 13 (2002), 252–273.
55. (with L. Schröder, T. Mossakowski, B. Klin, P. Hoffman) Amalgamation in the semantics of CASL. *Theoretical Computer Science* 331(2005), 215–247.
56. (with M. Bidoit, D. Sannella) Global development via local observational construction steps. In: *Proc. 27th Intl. Symp. Mathematical Foundations of Computer Science MFCS'02*, K. Diks, W. Rytter, eds., Lecture Notes in Computer Science 2420, 1–24, Springer-Verlag 2002.
57. Abstract specification theory: an overview. In: *Models, Algebras, and Logics of Engineering Software*, M. Broy, M. Pizka, eds., NATO Science Series - Computer and Systems Sciences, Vol. 191, 43–79, IOS Press, 2003.
58. (with L. Andrade, P. Baldan, H. Baumeister, R. Bruni, A. Corradini, R. De Nicola, J.-L. Fiadeiro, F. Gadducci, S. Gnesi, P. Hoffman, N. Koch, P. Kosiuczenko, A. Lapadula, D. Latella, A. Lopes, M. Loreti, M. Massink, F. Mazzanti, U. Montanari, C. Oliveira, R. Pugliese, M. Wermelinger, M. Wirsing, A. Zawłocki) AGILE: Software Architecture for Mobility. In: *Recent Trends in Algebraic Development Techniques*, 16th Intl. Workshop, WADT'02, Frauenchiemsee, Germany, September 2002, M. Wirsing, D. Pattinson, R. Hennicker, eds., Lecture Notes in Computer Science 2755, 1–33, Springer-Verlag 2003.
59. (with T. Mossakowski, A. Haxthausen, D. Sannella) CASL — The Common Algebraic Specification Language: semantics and proof theory. *Computing and Informatics* 22(2003), 285–321.
60. (with M. Bidoit, D. Sannella) Toward Component-Oriented Formal Software Development: An Algebraic Approach. In: “Radical Innovations of Software and Systems Engineering in the Future”, 9th Intl. Workshop, RISSEF 2002, Venice, Italy, October 2002, Revised Papers, M. Wirsing, A. Knapp, S. Balsamo, eds., Lecture Notes in Computer Science 2941, Springer-Verlag 2004, 75-90.
61. (with D. Sannella) Foundations. In: *CASL User Manual* by M. Bidoit, P. D. Mosses, Lecture Notes in Computer Science 2900 (IFIP Series), Springer 2004, 125–129.
62. (with H. Baumeister, M. Cerioli, A. Haxthausen, T. Mossakowski, P. Mosses, D. Sannella) CASL Semantics. In: *CASL Reference Manual*, P. D. Mosses, ed., Lecture Notes in Computer Science 2960 (IFIP Series), Springer 2004, 115–273.
63. Software Specification and Development in Heterogeneous Environments. In: *Proc. 1st Intl. Workshop on Combination of Logics: Theory and Applications CombLog'04*, July 28-30, 2004, Lisbon, W.A. Carnielli, F.M. Dióísio, P. Mateus, eds., 61–70, CLC 2004.
64. (with T. Mossakowski, D. Sannella) A Simple Refinement Language for CASL. In: J.-L. Fiadeiro, P.D. Mosses, F. Orejas (eds): *Recent Trends in Algebraic Development Techniques*, 17th Int. Workshop, WADT 2004, Revised Selected Papers. Lecture Notes in Computer Science 3423, Springer-Verlag 2005, 162–185.
65. (with R. Diaconescu, J. Goguen, T. Mossakowski) What is a logic? In: J.-Y. Beziau, (ed.): *Logica Universalis. Towards a General Theory of Logic.*, Birkhauser 2005, 113–133; and 2nd edition, Birkhauser 2007, 111–133.
66. (with D. Sannella) Horizontal composability revisited, In: *Algebra Meaning and Computation, Essays Dedicated to Joseph A. Goguen on the Occasion of His 65th Birthday*, K. Futatsugi, J.-P. Jouannaud, J. Meseguer, eds., Lecture Notes in Computer Science 4060, Springer 2006, 296–316.
67. Toward specifications for reconfigurable component systems, In: *Proc. 28th Intl. Conf. Application and Theory of Petri Nets and Other Models of Concurrency*, Petri Nets'07, J. Kleijn, A. Yakovlev, eds., Lecture Notes in Computer Science 4546, Springer 2007, 24–28.
68. (with M. Bidoit, D. Sannella) Observational interpretation of CASL specifications, *Mathematical Structures in Computer Science*, 18(2008), 325–371.
69. (with T. Mossakowski, A. Haxthausen, D. Sannella) CASL — The Common Algebraic Specification Language. In: *Logics of Specification Languages*, D. Bjørner, M.C.Henson, eds., Springer Verlag 2008, 241-298.
70. (with M.V. Cengarle, A. Knapp, M. Wirsing) A heterogeneous approach to UML semantics. In: *Concurrency, Graphs and Models, Essays Dedicated to Ugo Montanari on the Occasion of His 65th Birthday*, P. Degano, R. De Nicola, J. Meseguer, eds., Lecture Notes in Computer Science 5065, Springer 2008, 383–402.
71. (with D. Sannella) Observability concepts in abstract data type specifications, 30 years later. In: *Concurrency, Graphs and Models, Essays Dedicated to Ugo Montanari on the Occasion of His 65th Birthday*, P. Degano, R. De Nicola, J. Meseguer, eds., Lecture Notes in Computer Science 5065, Springer 2008, 593–617.

72. (with T. Mossakowski) Heterogeneous Logical Environments for Distributed Specifications. In: A. Corradini, U. Montanari (eds): *Recent Trends in Algebraic Development Techniques*, 19th Int. Workshop, WADT 2008, Revised Selected Papers. Lecture Notes in Computer Science 5486, Springer 2009, 266-289.
73. (with T. Mossakowski, R. Diaconescu) What is a logic translation? *Logica Universalis*, 3(2009), 95-124.

Volumes edited

74. (with D. Sannella) *Recent Trends in Data Type Specifications*, 5th Workshop on Specifications of Abstract Data Types, Gullane 1987, Lecture Notes in Computer Science 332, Springer-Verlag 1988.
75. *Mathematical Foundations of Computer Science 1991*, Proceedings of 16th International Symposium, Kazimierz Dolny, September 1991, Lecture Notes in Computer Science 520, Springer-Verlag 1991.
76. Special Issue on *Mathematical Foundations of Computer Science 1991* MFCS'91, *Fundamenta Informaticae* 16(1992), No. 2.
77. (with E. Astesiano, G. Reggio) *Recent Trends in Data Type Specifications*, 10th Workshop on Specifications of Abstract Data Types, Santa Margherita 1994, Lecture Notes in Computer Science 904, Springer-Verlag 1995.
78. (with J. Madey, W.M. Turski) Special Issue on *Formal Specifications: Foundations, Methods, Tools and Applications*, FMTA'95, *Science of Computer Programming* 28(1997), No. 2-3.
79. (with J.-L. Fiadeiro, J. Madey) Special Issue to Honour Professor W.M. Turski's Contribution to Computing Science on the Occasion of his 65th Birthday, *Information Processing Letters* 88(2003), No. 1-2.
80. (with J. Marcinkowski) *Computer Science Logic*, 18th International Workshop, CSL 2004, 13th Annual Conference of the EACSL, Karpacz, Poland, September 2004, Proceedings, Lecture Notes in Computer Science 3210, Springer-Verlag 2004.
81. (with J. Fitzgerald, I. Hayes) *FM 2005: Formal Methods*, International Symposium of Formal Methods Europe, Newcastle, UK, July 2005, Proceedings, Lecture Notes in Computer Science 3582, Springer-Verlag 2005.
82. (with L. Arge, Ch. Cachin, T. Jurdziński) *Automata, Languages and Programming*, 34th International Colloquium, ICALP 2007, Wrocław, Poland, July 2007, Proceedings, Lecture Notes in Computer Science 4596, Springer-Verlag 2007.
83. (with L. Arge, Ch. Cachin) Special issue on *Automata, Languages and Programming (ICALP 2007)*, *Theoretical Computer Science* 410(2009), No. 18.
84. (with A. Kurz, M. Lenisa) *Algebra and Coalgebra in Computer Science*, 3rd International Conference, CALCO 2009, Udine, Italy, September 7-10, 2009, Proceedings, Lecture Notes in Computer Science 5728, Springer-Verlag 2009.

Selected notes and technical reports

85. Algebras for some input/output semantics.
ICS PAS Report 402, Warsaw 1980.
86. Notes on the implementability of formal languages by concurrent systems.
ICS PAS Report 481, Warsaw 1982.
87. An obvious observation on functions definable by Petri nets.
Petri Nets and Related System Models Newsletter, 13(1983), 8-10.
88. (with M. Broy) Algebraic specification of the abstract data type "Continuum".
Bulletin of the EATCS 26, June 1985, 32-35.
89. (with D. Sannella) Tools for formal program development: some fantasies.
The LFCS Newsletter, Laboratory for Foundations of Computer Science, Department of Computer Science, University of Edinburgh, November 1988, 10-15.
90. Some worries about "The dynamic semantics of the BSI/VDM specification language".
Presented at the meeting of BSI/VDM Review Board in Brussels, December 1989.

91. (with D. Sannella) Algebraic specifications and formal methods for program development: what are the real problems?
Bulletin of the EATCS 41, June 1990, 134–137; also in: Current Trends in Theoretical Computer Science, G. Rozenberg, A. Salomaa, eds., World Scientific Series in Computer Science vol. 40, 115–120, World Scientific 1993.
92. (with D. Sannella, F. da Silva) Syntax, static semantics and dynamic semantics of Extended ML (version 2).
Technical report, October 1990.
93. Modules for MetaSoft: a technical definition.
Technical report, January 1992.
94. (with S. Kahrs, D. Sannella) The definition of Extended ML.
Report ECS-LFCS-94-300, University of Edinburgh, 1994.
95. (with M. Bidoit) Regular algebras: a framework for observational specifications with recursive definitions.
Report LIENS-95-12, Ecole Normale Supérieure, Paris 1995.
96. Semantics of architectural specifications in CASL.
Technical report, Institute of Informatics, Warsaw University, March 1999; included in: CoFI Task Group on Semantics, CASL – The Common Algebraic Specification Language – Semantics (version 1.0), World Congress on Formal Methods FM'99, Toulouse, France, CD ROM materials, Springer Verlag, 1999.

SELECTED TALKS

1. A language of specified programs.
Dept. of Computer Science, Univ. of Edinburgh, May 1983.
2. Naive denotational semantics.
Dept. of Computer Science, Univ. of Edinburgh, May 1983.
3. A language of specified programs.
Programming Reserach Group, Oxford Univ., September 1983.
4. Building specifications in an arbitrary institution.
Dept. of Computer Science, Manchester Univ., May 1984.
5. Building specifications in an arbitrary institution.
Intl. Symp. Semantics of Data Types, Sophia-Antipolis, June 1984.
6. Algebraic specifications in an arbitrary institution.
3rd Intl. Workshop on Theory and Applications of Abstract Data Types, Bremen, November 1984.
7. A remark on the existence of reachable initial objects in quasi-varieties.
3rd Intl. Workshop on Theory and Applications of Abstract Data Types, Bremen, November 1984.
8. Algebraic specifications in an arbitrary institution.
Dept. of Computer Science, Univ. of Passau, November 1984.
9. Advertising institutions.
Dept. of Computer Science, Technical Univ. of Munich, November 1984.
10. Advertising institutions.
Dept. of Computer Science, Aarhus Univ., December 1984.
11. Program specification and development in Extended ML.
Intl. Conf. Principles of Programming Languages POPL'85, New Orleans, January 1985.
12. Algebraic specifications in an arbitrary institution.
Center for the Study of Languages and Information, Stanford Univ., February 1985.
13. Specifications in an arbitrary institution.
Institute of Informatics, Technical Univ. of Braunschweig, March 1985.
14. Specifications in an arbitrary institution.
Dept. of Computer Science, Dortmund Univ., March 1985.
15. Specifications in an arbitrary institution.
Intl. Workshop on Semantics of Programming Languages, Bad Honnef, March 1985.
16. Continuous abstract data types.
Intl. Conf. Fundamentals of Computation Theory FCT'85, Cottbus, September 1985.
17. Bits and pieces of the theory of institutions.
Intl. Workshop on Category Theory and Computer Programming, Guildford, September 1985.
18. Bits and pieces of the theory of institutions.
Dept. of Mathematics and Statistics, McMaster Univ., Hamilton, April 1986.
19. Specifications in an arbitrary institution.
Dept. of Computer Science and Systems, McMaster Univ., Hamilton, April 1986.
20. Bits and pieces of the theory of institutions.
4th Intl. Workshop on Specifications of Abstract data Types, Burg Warberg, May 1986.
21. Specifications, proofs and refinements from institutional perspective.
IFIP WG 2.2 Meeting "Formal Description of Programming Concepts", Gl.Avernaes, Denmark, August 1986.
22. Specifications, proofs and refinements from institutional perspective.
Dept. of Computing, Imperial College, London, September 1986.
23. Specifications, proofs and refinements from institutional perspective.
Computer Laboratory, Univ. of Cambridge, September 1986.
24. Specifications, proofs and refinements from institutional perspective.
Lab. for Foundations of Computer Science, Dept. of Computer Science, Univ. of Edinburgh, September 1986.

25. Specifications, proofs and refinements from institutional perspective.
Dept. of Computer Science, Manchester Univ., September 1986.
26. Specifications, proofs and refinements from institutional perspective.
Programming Research Group, Oxford Univ., September 1986.
27. Software-system development: an abstract view.
invited response, IFIP Congress 1986, Dublin, September 1986.
28. Algebraic specifications — an institutional view.
Istituto di Elaborazione della Informatica, C.N.R., Pisa, March 1987.
29. Algebraic specifications — an institutional view.
Istituto di Analisi dei Sistemi ed Informatica, C.N.R., Rome, March 1987.
30. Toward formal development of programs from algebraic specifications: implementations revisited.
Joint Conf. on Theory and Practice of Software Development TAPSOFT'87, Pisa, March 1987.
31. Algebraic specifications with built-in domain constructors.
IFIP WG 2.2 Meeting “Formal Description of Programming Concepts”, Sophia-Antipolis, June 1987.
32. Algebraic specifications with built-in domain constructors.
5th Workshop on Specification of Abstract Data Types, Gullane, September 1987.
33. Institutionalising LF.
Lab. for Foundations of Computer Science, Dept. of Computer Science, Univ. of Edinburgh, October 1987.
34. Algebraic specifications with built-in domain constructors.
Laboratoire d'Informatique Theoretique et Programmation, Univ. Paris VII, March 1988.
35. Toward formal development of ML programs: methodological aspects and mathematical foundations.
Laboratoire de Recherche en Informatique, Univ. de Paris-Sud, Orsay, March 1988.
36. Algebraic specifications with built-in domain constructors.
13th Coll. Trees in Algebra and Programming CAAP'88, Nancy, March 1988.
37. Toward formal development of ML programs: methodological aspects and mathematical foundations.
IFIP WG 2.2 Meeting “Formal Description of Programming Concepts”, Warsaw, June 1988.
38. Toward formal development of ML programs: foundations and methodology.
Dept. of Computing, Imperial College, London, July 1988.
39. Toward formal development of ML programs: foundations and methodology.
Dept. of Computer Science, Manchester Univ., August 1988.
40. Toward formal development of ML programs: foundations and methodology.
Programming Research Group, Oxford Univ., September 1988.
41. Toward formal development of ML programs: foundations and methodology.
Lab. for Foundations of Computer Science, Dept. of Computer Science, Univ. of Edinburgh, September 1988.
42. A three-valued logic for software specification and validation.
2nd VDM-Europe Symp., Dublin, September 1988.
43. Toward formal development of ML programs: foundations and methodology.
Dept. of Computer Science, Lund Univ., February 1989.
44. Toward formal development of ML programs: foundations and methodology.
Dept. of Computer Science, Chalmers Univ. of Technology, Göteborg, March 1989.
45. Toward formal development of ML programs: foundations and methodology.
Dept. of Computer science, Stockholm Univ., March 1989.
46. Toward formal development of ML programs: foundations and methodology.
3rd Joint Conf. on Theory and Practice of Software Development TAPSOFT'89, Barcelona, March 1989.
47. Toward formal development of ML programs: foundations and methodology.
IFIP WG 2.3 Meeting “Programming Methodology”, Zaborów n. Warsaw, June 1989.
48. Logic representation in LF.
invited lecture, 3rd Intl. Conf. Category Theory and Computer Science, Manchester, September 1989.
49. Logic representation in LF.
Lab. for Foundations of Computer Science, Dept. of Computer Science, Univ. of Edinburgh, September 1989.
50. Toward formal development of ML programs: foundations and methodology.
Dept. Computer Science, Univ. of Copenhagen, November 1989.

51. Logic representation in LF.
Dept. of Computer Science, Aarhus Univ., December 1989.
52. Toward formal development of programs from algebraic specifications: parameterisation revisited.
7th Intl. Workshop on Specification of Abstract Data Types, Wusterhausen, East Germany, April 1990.
53. Toward formal development of programs from algebraic specifications: parameterisation revisited.
Dept. of Computer Science, Manchester Univ., May 1990.
54. Toward formal development of programs from algebraic specifications: parameterisation revisited.
Lab. for Foundations of Computer Science, Dept. of Computer Science, Univ. of Edinburgh, May 1990.
55. Toward formal development of programs from algebraic specifications: parameterisation revisited.
Institut für Informatik, Universität Würzburg, June 1990.
56. Toward formal development of programs from algebraic specifications: parameterisation revisited.
Fachbereich Informatik–Mathematik, Universität Bremen, June 1990.
57. Toward formal development of programs from algebraic specifications: parameterisation revisited.
Programming Research Group, Oxford Univ., June 1990.
58. Institutions: an overview.
Dept. of Computer Science, Manchester Univ., June 1991.
59. Toward formal development of programs from algebraic specifications: parameterisation revisited.
IFIP WG 2.2 Meeting “Formal Description of Programming Concepts”, Darmstadt, July 1991.
60. Toward formal development of programs from algebraic specifications: where do we stand?.
Joint 7th Workshop on Specification of Abstract Data Types, ADT’91 and 3rd COMPASS Workshop, ESPRIT Basic Research Working Group No. 3264, Dourdan, August 1991.
61. Toward formal development of programs from algebraic specifications: model-theoretic foundations.
School of Computer Science, Carnegie-Mellon Univ., Pittsburgh, January 1992.
62. Modules for a model-oriented specification language: a proposal for MetaSoft.
invited lecture, 4th European Symposium on Programming and 17th Colloquium on Trees in algebra and Programming, ESOP/CAAP’92, Rennes, February 1992.
63. Toward formal development of programs from algebraic specifications: model-theoretic foundations.
invited lecture, 19th International Colloquium on Automata, Languages and Programming ICALP’92, Vienna, July 1992.
64. Formal development of modular software systems in Extended ML.
Computer Laboratory, Univ. of Cambridge, March 1993.
65. Formal development of modular software systems in Extended ML.
5th COMPASS Workshop, Dresden, September 1993.
66. Tennenbaum’s theorem.
Joint 10th Workshop on Specification of Abstract Data Types ADT’94 and 6th COMPASS Workshop, ESPRIT Basic Research Working Group No. 3264, Santa Margherita, June 1994.
67. The semantics of Extended ML.
IFIP WG 2.2 Meeting “Formal Description of Programming Concepts”, San Miniato, June 1994.
68. Moving between logical systems.
2nd Conference on Computer Science Logic CSL’94, Kazimierz, September 1994.
69. Moving between logical systems.
1st MeDiCiS workshop “Methodology for the Development of Computer System Specifications” Namur, December 1994.
70. Moving between logical systems.
Department of Computer Science, Chalmers Univ., Göteborg, April 1995.
71. Moving between logical systems.
Laboratoire d’Informatique, Ecole Normale Supérieure, Paris, May 1995.
72. Moving between logical systems.
IFIP WG 2.2 Meeting “Formal Description of Programming Concepts”, Amsterdam, June 1995.
73. Bits and pieces of the theory of institutions.
Institute of Informatics, Univ. of Bergen, August 1995.

74. Towards formal development of programs from algebraic specifications: model-theoretic foundations.
Institute of Informatics, Univ. of Bergen, August 1995.
75. Formal development of modular software systems in Extended ML.
Institute of Informatics, Univ. of Bergen, September 1995.
76. Formal development of modular software systems in Extended ML.
Institute of Informatics, Univ. of Oslo, September 1995.
77. Moving between logical systems.
Joint 11th Workshop on Specification of Abstract Data Types ADT'95 and 7th COMPASS Workshop, ESPRIT Basic Research Working Group No. 3264, Oslo, September 1995.
78. Moving between logical systems.
1st Informal Meeting on Formalism-Logic-Institution Relating, Translating and Structuring FLIRTS'95, Genova, October 1995.
79. Behavioural satisfaction and equivalence in concrete model categories.
6th European Symposium on Programming ESOP'96, and 20th Colloquium on Trees in algebra and Programming, CAAP'96, Linköping, April 1996.
80. Behavioural satisfaction and equivalence in concrete model categories.
Dagstuhl Seminar "Specification and Semantics", Schloss Dagstuhl, July 1996.
81. Extended ML: a framework for formal development of modular Standard ML programs.
ACM State of the Art Summer School "Functional and Object Oriented Programming", Sobótka, September 1996.
82. Mind the gap! Abstract versus concrete models of specifications.
IFIP WG 2.2 Meeting "Formal Description of Programming Concepts", Macau, September 1996.
83. Institutions: an abstract framework for formal specifications, and Formal development of modular software systems in Extended ML.
UNU IIST/IFIP WG 2.2 Beijing Seminar, Beijing, October 1996.
84. Extended ML: a framework for formal development of modular Standard ML programs.
Univ. for Aviation and Astronautics, Beijing, October 1996.
85. Combining and representing logical systems.
12th Workshop on Algebraic Development Techniques ADT'97, Tarquinia, June 1997.
86. Combining and representing logical systems.
2nd Workshop on Formalism-Logic-Institution Relating, Translating and Structuring FLIRTS'97, Tarquinia, June 1997.
87. Combining and representing logical systems.
IFIP WG 2.2 Meeting "Formal Description of Programming Concepts", Graz, September 1997.
88. Moving specifications between institutions.
Dagstuhl Workshop on Semi-Formal and Formal Specification Techniques for Software Systems, Schloss Dagstuhl, July 1998.
89. Towards heterogeneous specifications.
International Conference on Frontiers of Combining Systems FroCoS'98, Amsterdam, October 1998.
90. Architectural specifications in CASL.
7th International Conference on Algebraic Methodology and Software Technology AMAST'98, Manaus, Brasil, January 1999.
91. Institutional bits and pieces.
Departamento de Matematica, Instituto Superior Tecnico, Lisbon, June 1999.
92. Architectural specifications in CASL.
Faculty of Sciences, Univ. of Lisbon, June 1999.
93. Architectural specifications in CASL.
IFIP WG 2.2 Meeting "Formal Description of Programming Concepts", Udine, June 1999.
94. Semantics of CASL.
13th Workshop on Algebraic Development Techniques ADT'99, Chateaux de Bonas, September 1999.
95. Semantics of CASL.
COFI Workshop held at World Congress on Formal Methods FM'99, Toulouse, September 1999.

96. Architectural specifications in CASL.
Dagstuhl Seminar on Rigorous Analysis and Design for Software Intensive Systems, Schloss Dagstuhl, October 1999.
97. Programs, algorithms, specifications — and other mathematical aspects of computer science.
Faculty of Mathematics and Informatics, Torun Univ., May 2000.
98. Architectural specifications in CASL.
Fachrichtung Informatik, Universitaet des Saarlandes, Saarbruecken, October 2000.
99. Semantics of CASL.
Within ETAPS'01 tutorial on Common Framework Initiative for Algebraic Specification and Development of Software, Genova, April 2001.
100. Enriched signatures and amalgamation for CASL models.
IFIP WG 1.3 Meeting “Foundations of System Specifications”, Alpes d’Huez, January 2002.
101. Architectural specifications in CASL.
AGILE meeting, Lisbon, February 2002.
102. Abstract specification theory.
Marktoberdorf 2002 Summer School on ”Models, Algebras and Logic of Engineering Software”, Marktoberdorf, July-August 2002.
103. Global development via local observational construction steps.
invited lecture, 27th Intl. Symp. Mathematical Foundations of Computer Science MFCS’02, Otwock, August 2002.
104. Observational interpretation of CASL architectural specifications.
16th Workshop on Algebraic Development Techniques ADT’02, Frauenchimsee, December 2002.
105. Software specification and development in heterogeneous environments.
invited lecture, 1st Workshop on Combination of Logics: Theory and Applications CombLog’04, Lisbon, July 2004.
106. Combining logical systems: An institutional view.
IFIP WG 2.2 Meeting “Formal Description of Programming Concepts”, Bertinoro, September 2004.
107. CASL methodology.
Workshop on Specification and Design Methodologies for Adaptive and Embedded Systems, Bangalore, January 2005.
108. Software specification and development in heterogeneous environments.
5th meeting on Formalism-Logic-Institution Relating, Translating and Structuring FLIRTS’05, Bremen, October 2005.
109. Institutions, abstract model theory and software specification.
Workshop on Applied and Computational Category Theory, ACCAT’06, Vienna, March 2006.
110. Toward (institutional) foundations of heterogeneous specifications.
IFIP WG 1.3 Meeting “Foundations of System Specifications”, La Roche en Ardenne and San Diego, May/June 2006.
111. Horizontal compasability revisited.
Festschrift Symposium in Honor of Joseph Goguen “Algebra, Meaning, and Computation”, San Diego, June 2006.
112. Toward (institutional) foundations of heterogeneous specifications.
Department of Computer Science, Univ. of Illinois, Urbana-Champaign, July 2006.
113. Toward (institutional) foundations of heterogeneous specifications.
IFIP WG 2.2 Meeting “Formal Description of Programming Concepts”, Udine, September 2006.
114. Toward (institutional) foundations of heterogeneous specifications.
Ecole Normale Supérieure, Paris, September 2006.
115. Toward specifications for reconfigurable component systems.
invited lecture, 28th International Conference on Application and Theory of Petri Nets and Other Models of Concurrency, Petri Nets’07, Siedlce, June 2007.
116. Foundations of software specification and development: an abstract overview.
School of Informatic Sciences (Escuela de Ciencias Informaticas) ECI 2007, Buenos Aires, July 2007.

117. Distributed specifications in heterogeneous logical environments.
19th Workshop on Algebraic Development Techniques ADT'08, Pisa, June 2008.
118. Heterogeneous logical environments for distributed specifications.
IFIP WG 1.3 Meeting "Foundations of System Specifications", Urbana-Champaign, July 2008.
119. Heterogeneous logical environments: an institutional view.
IFIP WG 2.2 Meeting "Formal Description of Programming Concepts", Torino, September 2008.
120. An easy exercise in Hoare's logic: imperative expressions.
IFIP WG 1.3 Meeting "Foundations of System Specifications", Udine, September 2009.
121. Many-sorted universal algebra: some technical nuances.
IFIP WG 1.3 Meeting "Foundations of System Specifications", Etelsen, July 2010.
122. Institutional foundations for distributed heterogeneous specifications.
Department of Computer and Information Sciences, Univ. of Strathclyde, Glasgow, August 2010.
123. Some nuances of many-sorted algebra.
School of Informatics, Univ. of Edinburgh, August 2010.