

## Logic, Language, Information and Computation

### WoLLIC 2005

This volume contains the peer-reviewed full versions of the contributions presented at the *12th Workshop on Logic, Language, Information and Computation (WoLLIC 2005)*, held in Florianópolis, Santa Catarina, Brazil, from July 19th to 22nd, 2005.

WoLLIC is a series of workshops which started in 1994 with the aim of fostering interdisciplinary research in pure and applied logic. The idea is to have a forum which is large enough in the number of possible interactions between logic and the sciences related to information and computation, and yet is small enough to allow for concrete and useful interaction across logic-related disciplines. Previous versions were held at: Recife (Pernambuco, Brazil) in 1994 and 1995; Salvador (Bahia, Brazil) in 1996; Fortaleza (Ceará, Brazil) in 1997; São Paulo (Brazil) in 1998; Itatiaia (Rio de Janeiro, Brazil) in 1999; Natal (Rio Grande do Norte) in 2000; Brasília (Distrito Federal, Brazil) in 2001; Rio de Janeiro (Brazil) in 2002; Ouro Preto (Minas Gerais, Brazil) in 2003; Fontainebleau (Paris, France) in 2004. In 2006 it was held at the CSLI, Stanford, and in 2007 the venue was the IME at Rio de Janeiro, Brazil. It is planned that the location in 2008 will be Edinburgh, Scotland. In 2009 the meeting will take place in Tokyo.

Scientific sponsorship has consistently come from: *Interest Group in Pure and Applied Logics (IGPL)*; *European Association for Logic, Language and Information (FoLLI)*; *Association for Symbolic Logic (ASL)*; *European Association for Theoretical Computer Science (EATCS)*; *Sociedade Brasileira de Computação (SBC)*; and *Sociedade Brasileira de Lógica (SBL)*.

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Contributions were received in the form of short papers in all areas related to logic, language, information and computation, including: logic and databases; logic programming and algebraic semantics; logic and linguistics; logic and artificial intelligence; logic, arithmetic and complexity; proof complexity, zero-knowledge proofs; proof theory, lambda calculus, categorical logic; model theory, descriptive complexity; real computation, algebraic complexity; logic and verification; natural computing.

There were five invited talks:

Melvin Fitting (CUNY, USA), *A quantified logic of evidence*.

Jean-Louis Krivine (Univ. Paris 7, France), *A program for the axiom of dependent choice*.

Leonid Libkin (Univ. Toronto, Canada), *Locality of queries and transformations*.

Grigori Mints (Stanford, USA), *Intuitionistic Frege systems are polynomially equivalent*.

Joel Spencer (Courant Inst., New York Univ., USA), *The complexity of random ordered structures*.

The following tutorial lectures were presented (two hours each):

*Logics of explicit evidence*, by Melvin Fitting.

*Curry–Howard correspondence in classical set theory*, by Jean-Louis Krivine.

*How to analyze expressiveness of logics over finite models*, by Leonid Libkin.

*A simple substitution method for ID1*, by Grigori Mints.

*The strange logic of random graphs*, by Joel Spencer.

All papers in the present volume were full versions of the accepted contributions which had been reviewed under the scientific responsibility of the programme committee consisting of Eric Allender (*Rutgers, USA*), Saugata Basu (*Georgia Tech, USA*), Peter Clote (*Boston College, USA*), Jörg Flum (*Univ. Freiburg, Germany*), Didier Galmiche (*LORIA, Univ. Henri Poincaré, France*), Andreas Herzig (*IRIT, France*), Jean-Baptiste Joinet (*Univ. Paris 7, France*), Makoto Kanazawa (*National Inst. of Informatics, Japan*), Yoshiharu Kohayakawa (*Univ. de São Paulo, Brazil*), Angus Macintyre (*Queen Mary Coll., Univ. London, UK*) (Chair), Luiz Carlos Pereira (*PUC-Rio & Univ. Fed. Rio de Janeiro, Brazil*), Hans Rott (*Univ. Regensburg, Germany*), Richmond Thomason (*Univ. Michigan, USA*), Yde Venema (*Univ. Amsterdam, The Netherlands*), Andrei Voronkov (*Manchester Univ., UK*), Marek Zaionc (*Jagiellonian Univ., Poland*).

The organizing committee consisted of G.V. Alves (*Univ. Fed. Pernambuco, Brazil*), G. Bittencourt (*Univ. Fed. Santa Catarina, Brazil*) (Co-Chair), E.N.M. Gonçalves (*Univ. Fed. Santa Catarina, Brazil*), J. Marchi (*Univ. Fed. Santa Catarina, Brazil*), A.G. de Oliveira (*Univ. Fed. Pernambuco, Brazil*), A.L.F. Perez (*Univ. Fed. Santa Catarina, Brazil*), E. Pozzebon (*DAS, Univ. Fed. Santa Catarina, Brazil*), R. de Queiroz (*Univ. Fed. Pernambuco, Brazil*) (Co-Chair).

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