

Dmitry Tishkovsky's CV

Personal information

First name: Dmitry
Family name: Tishkovsky
Highest degree:
PhD in Mathematics
and Physics
Current position:
Research Associate
School of Computer Science
The University of Manchester
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Languages:
Russian — native
English — fluent
Year of birth: 1972

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Research Interests

- Non-classical logical systems: description, modal, temporal, intuitionistic, etc logics
- Knowledge representation and reasoning
- Semantic Web
- Multi-agent systems
- Automated theorem proving
- Algebraisation of logics and algebraic aspects of logical systems

Employments

- 2007–2010 Research Associate**, Formal Methods Group, School of Computer Science, *University of Manchester*.
- 2004–2007 Research Associate**, Logic and Computation Group, Department of Computer Science, *University of Liverpool*.
- 2001–2004 Research Associate**, Formal Methods Group, Department of Computer Science, *University of Manchester*.
- 2004–2008 Senior Researcher**, Laboratory of Computation Theory and Applied Logic, *Sobolev Institute of Mathematics*, Novosibirsk.
- 2000–2004 Senior Researcher**, Laboratory of Logical Foundations of Computer Science, *Sobolev Institute of Mathematics*, Novosibirsk.
- 1999–2000 Junior Researcher**, Laboratory of Logical Foundations of Computer Science, *Sobolev Institute of Mathematics*, Novosibirsk.

Scientific projects

- 2007–2010 Consequence Relations in Logics of AI**, funded by *EPSRC*, principal investigators: Prof. V. Rybakov and Dr.-Ing. R. A. Schmidt, *co-investigator*.
- 2007–2010 Practical Reasoning Approaches for Web Ontologies and Multi-Agent Systems**, funded by *EPSRC*, principal investigator: Dr.-Ing. R. A. Schmidt, *research associate*.
- 2004–2007 Knowledge Representation and Reasoning about Distances**, funded by *EPSRC*, principal investigator: Prof. F. Wolter, *research associate*.
- 2001–2004 Proof Methods for Multi-Agent Systems**, funded by *EPSRC*, principal investigator: Dr.-Ing. R. A. Schmidt, *research associate*.
- 2000–2001 Non-Classical Logics**, funded by *Russian Fund for the Humanities*, principal investigator: Prof. L. Maksimova, *co-investigator*.
- 1997–1998 Non-Classical Logics**, funded by *Russian Fund for the Humanities*, principal investigator: Prof. L. Maksimova, *co-investigator*.
- 1995–1997 Non-Traditional Logic Systems and Logic and Algebraic Aspects of Computer Science**, funded by *Russian Federation State Committee for Higher Education*, principal investigator: Prof. L. Maksimova, *co-investigator*.

Education history

PhD in Mathematics and Physics Sept 1995 — May 1999

Chair of Algebra and Mathematical Logic
Dept. of Mathematics of Novosibirsk State University

PhD thesis:

Algebraisation of Superintuitionistic Predicate Logics

Supervisor: Prof. Larisa Maksimova

Main results of PhD thesis:

- A uniform algebraic semantics for all superintuitionistic predicate logics is constructed.
- It is shown how to build constructively a polymodal 'mirror' of given superintuitionistic predicate logic.
- Algebraic counterparts of disjunctive, existential properties, and various versions of interpolation and Beth definability properties of superintuitionistic predicate and propositional polymodal logics are obtained.

Master in Mathematics

Sept 1993 — June 1995

(Diploma with Distinction)

Chair of Algebra and Mathematical Logic
Dept. of Mathematics of Novosibirsk State University

Master thesis:

Algebraisation of Superintuitionistic Predicate Logics

Supervisor: Prof. Larisa Maksimova

Bachelor of Science

Sept 1989 — June 1993

(Diploma with Distinction)

Dept. of Mathematics of Novosibirsk State University

Main courses studied: Modal Logics, Non-Classical Logics, Modal Logics and Logics of Programs, Mathematical Logic, Algebra, Universal Algebra, Theory of Numbering, Stable Theories, Algorithms and Recursive Functions, Number Theory, English, Philosophy, Mathematical Analysis, Analytical Geometry, Differential Geometry, Probability Theory, Mathematical Statistics, Functional Analysis, etc.

Teaching experience

- 2006 **Software Development Tools** (COMP350). Lectures and tutorials. *University of Liverpool*. 22 contact hours.
- 2004–2006 **Foundations of Computer Science** (COMP109). Tutorials. *University of Liverpool*. 20 contact hours per each semester.
- 2003 **Introduction to programming in C** (CS510). Demonstrations. *University of Manchester*.
Knowledge representation and reasoning (CS616). Demonstrations. *University of Manchester*.
Reasoning about programs (CS1112). Demonstrations. *University of Manchester*.
- 2002 **C language** (CS510) demonstrator. *University of Manchester*.
Java language (CS1092) demonstrator. *University of Manchester*.
- 1997 **Mathematical logic and theory of algorithms**. Lectures and tutorials. *Novosibirsk State Technical University*. Approx. 30 contact hours.
- 1996–1997 **Mathematical logic and theory of algorithms**. Tutorials. *Novosibirsk State University*. Approx. 32 contact hours per each semester.
- 1993–1995 **Pascal language**. Lectures and tutorials. High school under auspices of *Novosibirsk State Technical University*. Approx. 180 contact hours per each year.

Experimental software development

- 2005–now Prototypical implementation of a universal tableau system METTEL for a wide range of non-classical logics which includes metric logics with ‘closer’ operator over description logic with nominals and universal modality [2,15,3,16,17].
University of Liverpool (2005–2006), *University of Manchester*. JAVA.
- 2002–2003 Parser and tableau system for Belief Dynamic Logic (BDL) [19].
University of Manchester. JAVA.
- 2001 Translators from Agent Dynamic Logic (ADL) [20,21] to Converse Propositional Dynamic Logic (CPDL) and from CPDL to Propositional Dynamic Logic (PDL) to be able to apply Description Logic Prover (DLP) to ADL.
University of Manchester. JAVA.

Referees

Prof. Frank Wolter. Computer Science Dept.,
University of Liverpool.

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University of Manchester.

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Industrial software development

- 1999–2001 Implementation of translators from Object Query Language (OQL) and Object Constraint Language (OCL) to SQL and JAVA and a translator of presentation of UML model in ‘Rational Rose’ to XML.
Novosoft Inc. (URL: <http://www.novosoft-us.com/>). JAVA.
- 1999 System of access control.
Development of the project and implementation of a driver for access control device.
Grumant (Novosibirsk). DELPHI 4, WinNT and Win95.
- 1997–1998 System of access control.
Development and management the project, implementation of parts of the system.
Security Systems (Novosibirsk). DELPHI 3–4, WinNT and Win95.
- 1997 Windows NT networking technologies analysis, creation of a benchmarking application under Windows NT permitting to evaluate robustness, throughput performance over 10 Mbps and 100 Mbps Ethernet networks (32 bit multi-threaded application). Multi-client/multi-server dynamically parameterisable pipe-based DLL.
Jobin Ivon-Sofie, Groups Instruments S.A., France. Visual C++ 5.0, WinNT.
- 1995–1996 Database management and data processing system (land-surveying informational system): development of parts of the database, implementation of program units for accessing the database, implementation of GUI.
‘SibGeoInform’ Centre (Novosibirsk). CLIPPER, MS-DOS.
- 1993–1994 Implementation of a graphical user-friendly interface with graphic representation of data and a low-level software for data input from a real-time device (with feedback control and monitoring).
Institute of Semiconductor Physics (Siberian branch of Russian Academy of Sciences). C++, MS-DOS.
- 1992–1993 Implementation of a graphical user-friendly interface and computer graphics for statistical data treatment.
Institute of Geology (Siberian branch of Russian Academy of Sciences). C++, MS-DOS.

Prof. Larisa Maksimova. Dept. of Mechanics and Mathematics of *Novosibirsk State University*; Laboratory of Computation Theory and Applied Logic, *Sobolev Institute of Mathematics*, Novosibirsk.

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Prof. Vladimir Rybakov. Dept. of Computing and Mathematics, *Manchester Metropolitan University*.

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Fax: +44 (0)161 247 1483

Refereed Journal Papers

1. Renate A. Schmidt and Dmitry Tishkovsky. On combinations of dynamic logic and doxastic modal logics. *Journal of Logic, Language and Information*, 17(1):109–129, January 2008.
2. Mikhail Sheremet, Dmitry Tishkovsky, Frank Wolter, and Michael Zakharyashev. A logic for concepts and similarity. *Journal of Logic and Computation*, 17(3):415–452, 2007.
3. Mikhail Sheremet, Dmitry Tishkovsky, Frank Wolter, and Michael Zakharyashev. From topology to metric: modal logic and quantification in metric spaces. In Guido Governatori, Ian Hodkinson, and Yde Venema, editors, *Advances in Modal Logic, Volume 6*, pages 429–448. College Publications, 2006.
4. Renate A. Schmidt, Dmitry Tishkovsky, and Ullrich Hustadt. Interaction between knowledge, action and commitment within agent dynamic logic. *Studia Logica*, 78(3):381–415, December 2004.
5. Renate A. Schmidt and Dmitry Tishkovsky. Multi-agent dynamic logics with informational test. *Annals of Mathematics and Artificial Intelligence*, 42(1–3):5–36, 2004. Special issue on *Computational Logic in Multi-Agent Systems*.
6. Renate A. Schmidt and Dmitry Tishkovsky. Combining dynamic logic with doxastic modal logics. In Philippe Balbiani, Nobuyuki Suzuki, Frank Wolter, and Michael Zakharyashev, editors, *Advances in Modal Logic, Volume 4*, pages 371–392. King's College London Publ., 2003.
7. Renate A. Schmidt and Dmitry Tishkovsky. On axiomatic products of PDL and S5: Substitution, tests and knowledge. *Bulletin of the Section of Logic*, 31(1):27–36, 2002.
8. Dmitry E. Tishkovsky. Algebraic equivalents of some properties of superintuitionistic predicate logics. *Algebra and Logic*, 40(2):218–242, 2001.
9. Dmitry E. Tishkovsky. On Beth property in extensions of Lukasiewicz logics. *Siberian Mathematical Journal*, 43(1):147–150, December 2001.
10. Dmitry E. Tishkovsky. On algebraic semantics for superintuitionistic predicate logics. *Algebra and Logic*, 38(1):36–50, 1999.
11. Dmitry E. Tishkovsky. Interpolation property and superintuitionistic predicate logics. *Siberian Mathematical Journal*, 39(1):172–180, 1998.

Not Refereed Journal Papers

None

Refereed Conference Papers

12. Renate A. Schmidt and Dmitry Tishkovsky. A general tableau method for deciding description logics, modal logics and related first-order fragments. Accepted at *The International Joint Conference on Automated Reasoning (IJCAR)*, 2008.
13. Renate A. Schmidt and Dmitry Tishkovsky. Using tableau to decide expressive description logics with role negation. In Karl Aberer, Key-Sun Choi, Natasha Noy, Dean Allemang, Kyung-Il Lee, Lyndon Nixon, Jennifer Golbeck, Peter Mika, Diana Maynard, Riichiro Mizoguchi, Guus Schreiber, and Philippe Cudré-Mauroux, editors, *Proceedings of the 6th International Semantic Web Conference and the 2nd Asian Semantic Web Conference (ISWC'07)*, vol. 4825 of *Lecture Notes in Computer Science*, pages 438–451. Springer-Verlag, 2007.
14. Renate A. Schmidt and Dmitry Tishkovsky. Deciding ALBO with tableau. In Diego Calvanese, Enrico Franconi, Volker Haarslev, Domenico Lembo, Boris Motik, Sergio Tessaris, and Anni-Yasmin Turhan, editors, *Proceedings of the 2007 International Workshop on Description Logics (DL'07)*, pages 135–146, 2007.
15. Ullrich Hustadt, Dmitry Tishkovsky, Frank Wolter, and Michael Zakharyashev. Automated reasoning about metric and topology (System description). In Michael Fisher, Wiebe van der Hoek, Boris Konev, and Alexei Lisitsa, editors, *Proceedings of the 10th European Conference on Logics in Artificial Intelligence (JELIA'06)*, vol. 4160 of *Lecture Notes in Artificial Intelligence*, pages 490–493. Springer-Verlag, 2006.
16. Mikhail Sheremet, Dmitry Tishkovsky, Frank Wolter, and Michael Zakharyashev. Comparative similarity, tree automata, and Diophantine equations. In Geoff Sutcliffe and Andrei Voronkov, editors, *Proceedings of the 12th International Conference on Logic Programming and Automated Reasoning (LPAR'05)*, vol. 3835 of *Lecture Notes in Artificial Intelligence*, pages 651–665. Springer-Verlag, 2005.
17. Mikhail Sheremet, Dmitry Tishkovsky, Frank Wolter, and Michael Zakharyashev. 'Closer' representation and reasoning. In *Proceedings of the 2005 International Workshop on Description Logics (DL'05)*, pages 25–36, 2005.
18. Renate A. Schmidt and Dmitry Tishkovsky. Logics with commuting action and informational modalities. In *Advances in Modal Logic Conference Proceedings (AiML'02)*, pages 91–109, Toulouse, France, 30 September–2 October 2002.
19. Renate A. Schmidt and Dmitry Tishkovsky. Multi-agent logics of dynamic belief and knowledge. In Sergio Greco, Sergio Flesca, Nicola Leone, and Giovambattista Ianni, editors, *Proceedings of the 8th European Conference on Logics in Artificial Intelligence (JELIA'02)*, vol. 2424 of *Lecture Notes in Artificial Intelligence*, pages 38–49. Springer-Verlag, 2002.
20. Renate A. Schmidt and Dmitry Tishkovsky. A Decidable Dynamic Logic for Agents with Motivational Attitudes. In *Methods for Modalities-2 Workshop Proceedings (M4M'01)*, Amsterdam, November 2001. 12 pages.
21. Renate A. Schmidt and Dmitry Tishkovsky. On calculi and Kripke semantics for multi-agent systems within the KARO framework. In Rajeev Goré, Alexander Leitsch, and Tobias Nipkow, editors, *Short papers of the 1st International Joint Conference on Automated Reasoning (IJCAR'01)*, pages 150–159, University of Siena, Italy, June 18–23 2001.

Not Refereed Conference Papers

22. Renate A. Schmidt and Dmitry Tishkovsky. Analysis of blocking mechanisms for description logics. In *Proceedings of the 14th Workshop on Automated Reasoning (ARW'07)*, pages 51–52, Imperial College of Science, Technology and Medicine, London, April 19–20 2007.
 23. Ullrich Hustadt, Dmitry Tishkovsky, and Frank Wolter. Logics of metric spaces with tessellation operator. In *Abstracts of TARSKI Workshop'04 of EU COST Action 274*, 2004.
 24. Renate A. Schmidt and Dmitry Tishkovsky. An Agent Logic Tableau System. In *Proceedings of the 10th Workshop on Automated Reasoning (ARW'03)*, University of Liverpool, April 15–16 2003.
 25. Renate A. Schmidt and Dmitry Tishkovsky. On Axiomatic Products of PDL and S5: Substitution, Tests and Knowledge. In *Proceedings of the 9th Workshop on Automated Reasoning (ARW'02)*, Imperial College of Science, Technology and Medicine, London, April 3–5 2002.
 26. Renate A. Schmidt and Dmitry Tishkovsky. On calculi and Kripke semantics for multi-agent systems within the KARO framework. In *Proceedings of the 8th Workshop on Automated Reasoning (ARW'01)*, page 30, The University of York, UK, March 22–23 2001.
 27. Renate A. Schmidt and Dmitry Tishkovsky. An extension of *-free PDL for agent-based theories. In *Logic Colloquium'01 (the 2001 ASL European Summer Meeting). Book of abstracts of Invited and Contributed Talks*, Vienna University of Technology, Vienna, Austria, August 6–11 2001.
 28. Dmitry Tishkovsky. On algebraic counterparts of some properties of superintuitionistic predicate and intuitionistic polymodal logics. In *Logic Colloquium'00 (the 2000 ASL European Summer Meeting). Book of abstracts of Invited and Contributed Talks*, page 248, Paris, France, July 23–31 2000.
 29. Dmitry Tishkovsky. Interpolation and Beth properties of superintuitionistic predicate and intuitionistic polymodal logics. In *Logic Colloquium'99 (the 1999 ASL European Summer Meeting). Book of abstracts of Invited and Contributed Talks*, page 64, Utrecht, Netherlands, August 1–6 1999.
 30. Dmitry Tishkovsky. On algebraic counterpart of Beth property of superintuitionistic predicate logics. In *Logic Colloquium'98 (the 1998 ASL European Summer Meeting). Book of abstracts of Invited and Contributed Talks*, page 106, Prague, Czech Republic, August 9–15 1998.
 31. Dmitry E. Tishkovsky. Constructing total algebraic semantics for superintuitionistic first-order logics. In *Abstracts of the Conference on Universal Algebra and Lattice Theory (UALT'96)*, page 59, Szeged, Hungary, July 15–19 1996.
 32. Dmitry E. Tishkovsky. On algebraic semantics for superintuitionistic first-order logics. In *Minisemester on Logic, Algebra and Computer Science (Helena Rasiowa in memoriam), Abstracts*, page 32, Warsaw, Poland, December 2–22 1996.
 33. Dmitry E. Tishkovsky. Some Superintuitionistic Predicate Logics without Interpolation Property. In *Second Workshop on Non-Standard Logics and Logical Aspects of Computer Science, Abstracts of Papers*, page 80, Irkutsk, Russia, June 15–98 1995.
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Other Papers and Technical Reports

34. Renate A. Schmidt and Dmitry Tishkovsky. Using tableau to decide expressive description logics with role negation. Preprint CSPP-42, University of Manchester, 2007.
 35. Renate A. Schmidt, Dmitry Tishkovsky, and Ullrich Hustadt. Interaction between knowledge, action and commitment within agent dynamic logic. Preprint CSPP-27, University of Manchester, 2003.
 36. Renate A. Schmidt and Dmitry Tishkovsky. Combining dynamic logic with doxastic modal logics. Preprint CSPP-23, University of Manchester, 2003.
 37. Dmitry E. Tishkovsky. *Algebraization of superintuitionistic predicate logics*. PhD thesis, Institute of Mathematics of Siberian Branch of Russian Academy of Science, Novosibirsk State University, 1999. 101 pages.
 38. Dmitry E. Tishkovsky. An autoreview of the PhD thesis "Algebraization of superintuitionistic predicate logics". Technical report, Institute of Mathematics of Siberian Branch of Russian Academy of Science, Novosibirsk State University, 1999. 18 pages.
 39. Dmitry E. Tishkovsky. Algebraic equivalents of some properties of superintuitionistic predicate logics. Technical Report 38, Novosibirsk State University, 1998. 15 pages.
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