

## SELECTED LIST of PUBLICATIONS

- J. Gruska: A perception of informatics, 49 pages, this server
- J. Gruska: Impacts of informatics on QIPC, Quantum signal and information,, Nanjing university of Post and Telecommunication, 2010, in print
- From classical cryptography to quantum physics through quantum cryptography. Journal of the India Institute of Science, V 89, N3, 271-282 str., 2009
- Quantum computation, Willey Encyklopedia of Computer Science and Engineering, 2297-2310, 2009
- Algebraic methods in quantum informatics, in "Algebraic Informatics", Springer, LNCS 4728, 87-111, 2007
- Quantum informatics and its relation to informatics, physics and mathematics (A dialog with Cris Calude), Bulletin of EATCS, June issues N92, pages 20 - 30, October issue, pages N93, pages 33-49, 2007
- The firing squad synchronization problem on squares, toruses and rings (co-authors: S. La Torre , M. Parente), International Journal on Foundations of computer Science, V18, N3, 637-654, 2007
- Quantum informatics paradigms and tools for QIPC, Quantum computing, Proceedings of BACKaction, a conference in Kanpur, March 2006, Ed. D. Goswami, AIP conference proceedings # 864, 1-10
- The emergence and challenges of quantum informatics, It-Information technology, V48, issue 6, 336-343, 2006, Special issue devoted to Thomas Beth, Ed. R. Vollmar
- From informatics to quantum informatics, Proceedings of the Fourth IFIP International Conference on Theoretical Computer Science- TCS 2006 at the World Computer Congress, Springer, 17-46, 2006
- A broader view on limitations of information processing and communication by nature, Natural computing, V6, 75-112, 2007, Springer
- Different Time Solutions for the Firing Squad Synchronization Problem on Basic Grid Networks, Theoretical Informatics and Applications, co-authors: S. La Torre, M. Napoli and M. Parente, V 40, 177-206, 2006.
- Quantum finite automata: an invitation, (Eds. Z. Esik, C. Martin-Vide, V. Mitrană): Recent advances in Formal Languages and Applications, Studies in Computational Intelligence 25, Springer Verlag, 81-117, 2006.

- Security in quantum multipartite cryptography, in Aspects of Network and Information Security, Proceedings of the NATO Advanced Study Institute on Network Security and Intrusion Detection, Yerevan, 2005, IOS Press, ISBN 978 1-58603 856, 19-46 pages
- Universality and optimality of quantum information processing primitives, In Quantum information and communication, Proceedings of QICC'05, Allied Publishers, Eds: S. P. Pal and S. Kumar, ISBN 81-8424-064-3, 2006, 1-18.
- Quantum complexity theory tools, goals and challenges, In Quantum information and communication, Proceedings of QICC'05, Allied Publishers, Eds: S. P. Pal and S. Kumar, ISBN 81-8424-064-3, 2006, 175-197.
- Main challenges and driving forces of IT in the era of globalization, Proceedings of Shanghai Forum, *časť* Information Technology, Fudan University Press, Shanghai, 60-72, May 16-17, 2005
- Optimal time & communication solution of firing squad synchronization problems on square arrays, toruses and rings, co-authors Dominik Parente and Salvatore La Torre, Proceedings of DLT'04, 200-211, LNCS 3340, 2004
- Universal sets of quantum information processing primitives and optimal use of such primitives, General Theory of information transfer and combinatorics, Proceedings of the Bielefeld Workshop in information transmission and combinatorics, edited by R. Ahlswede, LNCS 4123, Springer Verlag, 2006, pages 356-377, see also Electronic Notes in Discrete mathematics, V21, 285-289, 2005
- Quantum complexity theory goals and challenges. Special issue of The International Journal on Quantum Information Processing, devoted to Camerino conference, V3, N1, 31-40, 2005
- Quantum entanglement as a new quantum information processing resource, New Generation Computing, V21, N4, 279-296, 2003
- Succinctness in quantum information processing. Proceedings of DCFS Conference, MTA SZTAKI, Budapest July 2003, 15-25.
- Power of quantum entanglement, co-authors H. Imai and K. Matsumoto, in Proceedings "Foundations of information technology in the era of network and mobile computing", I FIP'02 World Computer Congress, pages 3-22, Kluwer Academic Publisher, 2002
- Quantum information processing, Proceedings of the annual database conference DAT-ACON, Masaryk University, 2002, 77-112.
- Quantum computing challenges, In "Mathematics unlimited: 2001 and beyond, Springer-Verlag, 529-564.
- Quantum finite automata. co-author co-author R. Vollmar, Proceedings of the Kyoto International Conference on Words, Languages and Combinatorics III, Kyoto, March 15-19, 2000, World Scientific, 192-211, 2003

- Quantum implications of quantum automata, Proceedings of NATO Workshop on decoherence in quantum computing, Mykonos, June 2000, 18 pages
- Quantumization of theoretical informatics, Proceedings of IFIP TCS2000, Springer-Verlag, LNCS 1872, 604-608, 2000.
- Descriptive complexity issues in quantum computing, Journal of Automata, Languages and Combinatorics, V5, N3, 191-218, 2000
- Quantum challenges, Proceedings of SOFSEM'99, Springer-Verlag, LNCS, 1523, p. 2-29, 1999.
- Quantum computing, McGraw-Hill, 1999, 440 pages
- Fix-point semantics of systolic systems transformation. Joint author I. Guessarian, Journal of Automata, Languages and Combinatorics, V2, 1997, 93-133
- Foundations of computing, International Thomson Computer Press, XV+720 pages, in 1997
- Succinctness of descriptions of SBTA-languages. Joint authors: A. Monti, M. Napoli, D. Parente, Theoretical Computer Science, V179, N 1-2, 251-271, 1997.
- State complexity of SBTA languages. Joint authors: E. Fachini, M. Napoli, D. Parente. Proceedings of LATIN'95, LNCS 911, Springer-Verlag 346-357, 1995.
- Optimization of systolic tree automata. Joint authors: M. Napoli, D. Parente, Proceedings of IFIP Congress'94, INFORMATION PROCESSING'94, 247-252.
- Fix-point semantics of synchronized systems and correctness of their basic transformations. Joint-author: I.Guessarian, Proceedings of IFIP Congress'94, INFORMATION PROCESSING'94, 231-238
- Normal forms and nondeterminism in Y-tree systolic automata. Joint authors: E. Fachini, M. Napoli, D. Parente, in the "Proceedings of the second International Colloquium on Words, Languages and Combinatorics" in Kyoto, 1992, ED. M. Ito and H. Jürgensen, World Scientific, 143-154, Kyoto, 1994.
- Informatics and its education - new horizons, aims, and principles, Proceedings of SOFSEM'93, INFOSAT Bratislava, 85-96, 1993.
- Why we should not any longer only repair, polish and iron current computer science education. Proceedings of IFIP WG3.2 Working Conference "Informatics at university level: Teaching advanced subjects in the future", ETH Zurich, 1991, Education & Computing 8, 1993, 303-330.
- Power of Interconnections and of Nondeterminism in Regular T-tree Systolic Automata. Joint authors: E. Fachini, M. Napoli and D. Parente. Mathematical System Theory, V28, 245-266, 1995.

- Maturing of Informatics, (joint-author H. Jürgensen) in "Images of programming", edited by D. Björner, V. Kotov, Elsevier Science Publisher, 1991, I-55 -I-69.
- Informatics as the scientific environment for artificial intelligence. In "The future in research in artificial intelligence" (edited by R. Meersman, Ir. P. A. Flach), Elsevier, 1991 11-23.
- Methodological, social and ethical problems in programming and artificial intelligence. In "Intelligent systems -state of the art and future directions", ed. W. Ras and M. Zemanková, 488- 503, 1990, Ellis Horwood.
- Synthesis, structure, and power of systolic computations. Theoretical Computer Science, V71, 1990, 47-77
- Simulation of systolic tree automata on trellis automata. Joint authors: E. Fachini, A. Maggiolo Schettini, D. Singiorgi, International Journal on Foundations of Computer Science, V1, N2, 1990, 87-110.
- Systolic architectures, systems and computations. Proceedings of ICALP'88, LNCS 317, 1988, Springer-Verlag, 254-270..
- Modular trellis automata. Joint author: A. Černý, Fundamenta Informaticae IX, 1986, 253-282.
- Systolic trellis automata: stability, decidability and complexity. Joint authors: K. Culik, A. Salomaa, Information and Control, V71, N3, 1986, 218-230.
- Modular trellises. Joint author: A. Černý, in "Book of L", Springer-Verlag, 1986, 45-62.
- Systolic trellis automata. Joint authors: K. Culik II, A. Salomaa, International Journal on Computer Mathematics, 1984, V15, 195-212, V16, 3-22.
- Systolic automata - power, characterization, non-homogeneity. Proceedings of MFCS'84, LNCS 176, 1984, 32-49.
- Systolic automata for VLSI on balanced trees. Joint authors: K. Culik II, A. Salomaa, Acta Informatica, V18, 1983, 10-18
- On a family of languages resulting from systolic tree automata. Joint authors: K. Culik II, A. Salomaa, Theoretical Computer Science, V23, 1983, 231-242
- On non-regular context-free languages and pumping. Joint authors: K. Culik II, A. Salomaa, EATCS Bulletin, N16, 1982, 22-24
- Data types and data structures. In Slovak, joint authors: J. Wiedermann, A. Černý), Proceedings SOFSEM'78, VVS Bratislava, 45-110, 1978
- Descriptive complexity (of languages) - a short survey. Proceedings of MFCS'76, LNCS 45, 1976, 65-80.

- Structural unambiguity and context-free grammars. *Information Processing Machines*, V18, 1975, 17-54.
- On star-height hierarchies of context-free languages. *Kybernetika*, V9, 1973, 231-236.
- Descriptive complexity of context-free languages. *Proceedings of MFCS'73*, High Tatras, 1973, 71-85.
- Generalized context-free grammars. *Acta Cybernetica*. V2, 1973, 35-39.
- On the size of context-free grammars. *Kybernetika*, V8, 1972, 213-218
- A characterization of context-free languages. *Journal of Computer and System Sciences*, V5, 1971, 353-363 (Reprinted in Russian in "Kiberneticheski sbornik", V9, Moscow, 1972, 114-126.
- A few remarks on the index of context-free grammars and languages. *Information and Control*, V19, 1971, 216-223
- Complexity and unambiguity of context-free grammars and languages. *Information and Control*, V18, 1971, 502-519
- Unambiguity of context-free grammars and languages. *Information Processing* 68, North-Holland, 1971, 135-139
- Some classification of context-free languages. *Information and Control*, V14, 1969, 152-173.
- Calculation of thin-walled bars. In Slovak, joint-author: A. Mrázik, Publishing House, Slovak Academy of Sciences, 1965, 120 p.