

Michael Blinov

Theoretical Biology and Biophysics Group,
Los Alamos National Laboratory
Phone: (505) 667-4111 (w) /662-8910 (h)
Fax: (505) 665-3493
email: mblinov@lanl.gov
URL: <http://cellsignaling.lanl.gov/mblinov>

Highlights

- Development of algorithms and software tools for modeling and analysis of biological systems.
- Modeling of complex signal-transduction systems (EGF receptor system , FceRI receptor system for the IgE antibody, MAPK cascade, EPO/Jak/Stat pathway, interleukin-1 (IL-1) receptor type 1).
- Extensive database, Perl and web programming experience.
- Extensive research experience with ODE and dynamical systems. Deep math background.
- Project management skills (coordinator of several programming and educational projects).

Employment

- **2003-present** Post Doctoral Research Associate, Theoretical Biology Group, LANL, USA
- **2001-2003** Research assistant, Theoretical Biology Group, LANL, USA
- **1999-2001** Co-founder and programming team leader of NetGliding.com, Israel

Education

- **Ph.D. , 2003** The Weizmann Institute of Science, Math./Comp. Sci. (Y. Yomdin) GPA: 96.87/100.00
- **M.Sc., 1997** The Weizmann Institute of Science, Math./Comp. Sci. (Y. Yomdin) GPA: 95.44/100
- **B.Sc., 1995** The Moscow State University, Mathematics , GPA: 5/5

Peer-reviewed Publications

1. **M. L. Blinov**, J. R. Faeder, B. Goldstein, W. S. Hlavacek. (2004) "BioNetGen: software for rule-based modeling of signal transduction based on the interactions of molecular domains", *Bioinformatics* (in press)
2. **M. Blinov**, M. Briskin, Y. Yomdin. (2004) "Local Center Conditions for Abel Equation and Cyclicity of it Zero Solution", *J. d'Anal. Math.* (in press)
3. W. S. Hlavacek, J. R. Faeder, **M. L. Blinov**, A. S. Perelson, B. Goldstein. (2003) "The Complexity of Complexes in Signal Transduction", *Biotechnol. Bioeng.* **84**: 783-794.
4. **M. Blinov**, N. Roytvarf, Y. Yomdin. (2003) "Center and Moment Conditions for Rational Abel Equations", *Functional and Differential Equations* **10**: 95-106.
5. J. R. Faeder, W. S. Hlavacek, I. Reischl, **M. L. Blinov**, H. Metzger, A. Redondo, C. Wofsy, and B. Goldstein. (2003) "Investigation of early events in FceRI-mediated signaling using a detailed mathematical model." *J. Immunol.* **170**: 3769-81
6. **M. Blinov**, N. Zehavi, S. Black. (2003) "Computer motivated study of Problems in Number Theory", *The International Journal of Computer Algebra in Mathematics Education* **9**: 315-330
7. B. Goldstein, J. R. Faeder, W. S. Hlavacek, **M. L. Blinov**, A. Redondo, and C. Wofsy. (2002) "Modeling the early signaling events mediated by aggregation of FceRI.", *Mol Immunol.* **38**: 1213-1219
8. **M. Blinov**, Y. Yomdin. (2001) "Center and Composition Conditions for Abel Differential Equation, and rational curves", *Qualitative Theory of Dynamical Systems* **2**: 111-127
9. **M. Blinov**, Y. Yomdin. (1999) "Generalized center conditions and multiplicities for polynomial Abel equations of small degrees", *Nonlinearity* **12**: 1013-1028.

Talks on international meetings

- “**Modeling and analysis of combinatorial complexity in signal transduction**”, *Understanding Complex Systems Symposium*, Urbana-Champaign, IL, May 17-20, 2004
- “**Center and moment conditions for rational Abel equations on a closed curve**”, *Conference on "Bifurcations de systèmes différentiels, applications à la biologie"*, Marseille, France, December 16-20, 2002
- “**Abel Differential Equation on Rational Curves**”, *Summer School on Dynamics Systems*, CIME, Cetraro, Italy, June 18-26, 2000
- “**Center and Composition Conditions for Abel Differential Equation, and Rational Curves**”, *Conference on "Geometrie des equations differentielles"*, Marseille, France, October 3-10, 1999

Selected Poster Abstracts

- **M. L. Blinov**, J. R. Faeder, B. Goldstein, W. S. Hlavacek. "BIONETGEN: a modeling tool that handles combinatorial complexity", *Mathematical Models in Signaling Systems*, Nashville, TN, June 16-18, 2004
- **M. L. Blinov**, J. R. Faeder, B. Goldstein, W. S. Hlavacek. "Modeling and analysis of combinatorial complexity in signal transduction", *International Conference on Complex Systems (ICCS2004)*, Boston, MA, May 19-21, 2004
- W. S. Hlavacek, **M. L. Blinov**, M. A. Savageau, M. E. Wall. "The EcoTFs Database: Escherichia Coli Transcription Factors and Signals", *RECOMB 2004*, San Diego, CA, March 27-31, 2004
- **M. L. Blinov**, J. R. Faeder, W. S. Hlavacek, B. Goldstein. "Network model for early events in EGFR signaling that accounts for hundreds of protein complexes and phosphoforms", *Proceedings of the 4th International Conference on Systems Biology*, St Louis, USA, November 5-9, 2003, p. 89-90
- J. R. Faeder, **M. L. Blinov**, W. S. Hlavacek, B. Goldstein. "Networks that govern Complex Formation during Signal Transduction Exhibit Narrow Flows", *Proceedings of the 4th International Conference on Systems Biology*, St Louis, USA, November 5-9, 2003, p. 115-116
- **M. L. Blinov**, J. R. Faeder, W. S. Hlavacek,. "Combinatorial complexity in immunoreceptor signaling", *Proceedings of the 3rd International Conference on Systems Biology*, Stockholm, Sweden, December 10-15, 2002, p. 58
- **M. L. Blinov**, W. S. Hlavacek, J. R. Faeder, B. Goldstein. "Database of Models for Ligand-Receptor Binding in XML-based formats", *Proceedings of the 2nd International Conference on Systems Biology*, Pasadena, USA, November 4-7, 2001, p. 125
- J. R. Faeder, W. S. Hlavacek, A. Redondo, C. Wofsy, **M. L. Blinov**, and Byron Goldstein. "A detailed kinetic model of immuno-receptor signaling", *Proceedings of the 2nd International Conference on Systems Biology*, Pasadena, USA, November 4-7, 2001, p. 17
- **M. L. Blinov**, W. S. Hlavacek, J. R. Faeder, B. Goldstein. "Analysis of Cell-Signaling Networks: Which Reactions in the Network are Important?" *Bridging the Canyon: Biology at LANL*, Santa Fe, NM, September 12-13, 2001

Patents

- “Blinov M, Faeder J, Hlavacek W, Software and procedures for creating mathematical/computational models of cellular signaling. US Patent Application S-100,635 (filed 2003).

Awards

- “BioNetGen” software nominated by Los Alamos National Lab for 2004 R&D 100 competition.
- Student Distinguished Performance Award at Los Alamos Natl Lab, 2003
- Graduate Fellowships of the Weizmann Institute of Sciences, 1995-2001
- The National Academy of Sciences (US) Travel Grant, 1999

- International Science Foundation Grant #MQO000, Independent Moscow University, 1994-1995
Michael Blinov
- Soros Foundation Student Grant for distinguished successes in studies, Moscow State University, 1994-1995

Computer Skills

- Web programming: Perl, PHP, SQL, Apache/Linux. Administrator of <http://cellsignaling.lanl.gov> and <http://ecotfs.lanl.gov> web-portals. See personal website for more projects.
- Programming languages: Perl, JAVA, C, FORTRAN, Basic
- Math programming: Mathematica, MatLab, Maple, Derive

Teaching Experience

- **2003** Lecturer on MatLab course at the Summer School on Neural Networks, Santa Fe Institute.
- **1998-2000** Lecturer for the course "Mathematical Modeling in Biology" (Prof. Lee Segel)
- **1997** Teaching assistant for the course "Computer Algebra Systems" (Dr. N. Zehavi).
- **1997-1998.** Mentor for Summer Science Institute. Supervised 2 preuniversity students working on scientific projects.

Project management Skills

- **Programming team leader, 2000-2001.** Supervised staff of 2 programmers. Duties included software and hardware purchases, projects description and negotiations with customers.
- **Math Coordinator for Summer Science Institute, 1999-2000.** Supervised staff of 6 mentors (hiring and training mentors, interviewing students, preparation of reports, presentations, checking results and considering all the claims.

Additional Skills

- **Languages:** English (fluent), Russian (native), Hebrew (good), some German
- Image processing, bio informatics, numerical methods, cryptography, low dimensional topology.
- Yachting (Royal Yacht Association Day Skipper course), rafting, catamaran sailing