

Principal Investigator/Program Director (Last, First, Middle):

Principal Investigator/Program Director (Last, First, Middle): **Bader, Joel S.**

BIOGRAPHICAL SKETCH

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NAME Joel S. Bader		POSITION TITLE Assistant Professor	
eRA COMMONS USER NAME JOEL.BADER			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Lehigh University	B.S.	1986	Biochemistry
University of California, Berkeley	Ph.D.	1991	Theoretical Chemistry
Columbia University	Post-Doctoral	1992-1995	Theoretical Chemistry

A. Positions and Honors.

Positions and Employment

1995-1999, Various positions, CuraGen Corporation

1999-2003, Director of Bioinformatics, CuraGen Corporation

2003-present, Assistant Professor, Whitaker Biomedical Engineering Institute, Whiting School of Engineering, Johns Hopkins University

Memberships on Federal Government Advisory Committees

2000-present, Member, NIH Study Section SSS-Y, Special Emphasis Panel on Biotechnology

2004, Member, NIH/NCI Study Section for Integrative Cancer Biology Programs

Reviewer for Science, Nature, Bioinformatics, BMC Bioinformatics, PNAS, Nucleic Acids Research, PLoS Biology

Other Experience and Professional Memberships

American Association for the Advancement of Science

American Society of Human Genetics

Biomedical Engineering Society

International Society for Computational Biology

Honors

1983, Liberty High School, Class Rank 1

1986, Phi Beta Kappa

1986, Tau Beta Pi

1986, Lehigh University, Class Rank 1

1986-1989, National Science Foundation Pre-Doctoral Research Fellowship, University of California, Berkeley

1999-2000, Faculty, Cold Spring Harbor Genome Informatics Workshop (Lincoln Stein, Director)

B. Publications.

Selected peer-reviewed publications (in chronological order)

1. Kuharski RA, **Bader JS**, Chandler D, Sprik M, Impey RW. 1988. Molecular model for aqueous ferrous--ferric electron transfer. *Journal of Chemical Physics*. 89:3248-3256.
2. **Bader JS**, Chander D. 1989. Computer simulation of photochemically induced electron transfer. *Chemical Physics Letters*. 157:501-504.

3. **Bader JS**, Kuharski RA, Chandler D. 1990. Role of nuclear tunneling in aqueous ferrous-ferric electron transfer. *Journal of Chemical Physics*. 93:230-236.
4. **Bader JS**, Chandler D. 1992. Computer simulation study of the mean forces between ferrous and ferric ions in water. *Journal of Physical Chemistry*. 96:6423-6427.
5. Pollak E, **Bader JS**, Berne BJ, Talkner P. 1993. Theory of correlated hops in surface diffusion. *Physical Review Letters*. 70:3299-3302.
6. **Bader JS**, Berne BJ. 1994. Quantum and classical relaxation rates from classical simulations. *Journal of Chemical Physics*. 100:8359-8366.
7. **Bader JS**, Berne BJ. 1995. The energy-dependent transmission coefficient and the energy distribution of classical particles escaping from a metastable well. *Journal of Chemical Physics*. 102:7953-7965.
8. **Bader JS**, Berne BJ, Pollak E. 1995. Activated rate processes: The reactive flux method for one-dimensional surface diffusion. *Journal of Chemical Physics*. 102:4037-4055.
9. Rick SW, Stuart SJ, **Bader JS**, Berne BJ. 1995. Fluctuating charge force fields for aqueous solutions. *Journal of Molecular Liquids*. 65:31-40.
10. Deem MW, **Bader JS**. 1996. A configurational bias Monte Carlo method for linear and cyclic peptides. *Molecular Physics*. 87:1245-1260.
11. **Bader JS**, Berne BJ, Pollack E, Hanggi P. 1996. The energy relaxation of a nonlinear oscillator coupled to a linear bath. *Journal of Chemical Physics*. 104:1111-1119.
12. **Bader JS**, Berne BJ. 1996. Solvation energies and electronic spectra in polar, polarizable media - simulation tests of dielectric continuum theory. *Journal of Chemical Physics*. 104:1293-1308.
13. **Bader JS**, Cortis CM, Berne BJ. 1997. Solvation and reorganization energies in polarizable molecular and continuum solvents. *Journal of Chemical Physics*. 106:2372-2387.
14. **Bader JS**, Hammond RW, Henck SA, Deem MW, McDermott GA, Bustillo JM, Simpson JW, Mulhern GT, Rothberg JM. Nov 1999. DNA transport by a micromachined Brownian ratchet device. *Proceedings of the National Academy of Sciences of the United States of America*. 96:13165-13169.
15. Hammond RW, **Bader JS**, Henck SA, Deem MW, McDermott GA, Bustillo JM, Rothberg JM. 2000. Differential transport of DNA by a rectified Brownian motion device. *Electrophoresis*. 21:74-80.
16. **Bader JS**, Bansal A, Sham P. 2001. Efficient SNP-based tests of association for quantitative phenotypes using pooled DNA. *Genescreen*. 1:143-150.
17. **Bader JS**, Deem MW, Hammond RW, Henck SA, Simpson JW, Rothberg JM. 2002. A Brownian-ratchet DNA pump with applications to single-nucleotide polymorphism genotyping. *Applied Physics A*. 74:1-4.
18. Jawaid A, **Bader JS**, Purcell S, Cherny SS, Sham P. Feb 2002. Optimal selection strategies for QTL mapping using pooled DNA samples. *European Journal of Human Genetics*. 10:125-132.
19. **Bader JS**, Sham P. 2002. Family-based association tests for quantitative traits using pooled DNA. *European Journal of Human Genetics*. 10: 868-876.
20. Sham P, **Bader JS**, Craig I, O'Donovan M, Owen M. 2002. DNA Pooling: a tool for large-scale association studies. *Nature Reviews Genetics*. 3:862-871.
21. **Bader JS**. 2003. Greedily building protein networks with confidence. *Bioinformatics*. 19: 1869-1874.
22. Giot L, **Bader JS**, Brouwer C, Chaudhuri A, Kuang B, Li Y, Hao YL, Ooi CE, Godwin B, Vitols E, Govindan V, Pochart P, Machineni H, Welsh M, Kong Y, Zerhusen B, Malcolm R, Varrone Z, Collis A, Minto M, Burgess S, McDaniel L, Stimpson E, Spriggs F, Williams J, Neurath K, Ioime N, Agee M, Voss E, Furtak K, Renzulli R, Aanensen N, Carrolla S, Bickelhaupt E, Lazovatsk Y, DaSilva A, Zhong J, Stanyon CA, Finley RL, White KP, Braverman M, Jarvie T, Gold S, Leach M, Knight J, Shimkets RA, McKenna MP, Chant J, Rothberg JM. 2003. A genome-scale protein interaction map of *Drosophila melanogaster*. *Science*. 302: 1727-1736.
23. **Bader JS**, Chaudhuri A, Rothberg JM, Chant J. 2004. Gaining confidence in high-throughput protein interaction networks. *Nature Biotechnology*. 22: 78-85.
24. Iossifov I, Krauthammer M, Friedman C, Hatzivassiloglou V, **Bader JS**, White KP, Rzhetsky A. 2004. Probabilistic inference of molecular networks from noisy data sources. *Bioinformatics*. 20: 1205-1213.
25. Pan X, Yuan DS, Xiang D, Wang X, Sookhai-Mahadeo S, **Bader JS**, Hieter P, Spencer F, Boeke JD. 2004. A robust toolkit for functional profiling of the yeast genome. *Mol Cell*. 16: 487-496.
26. Margulies M, Egholm M, Altman WE, Attiya S, **Bader JS**, Bembien LA, Berka J, Braverman MS, Chen YJ, Chen Z, Dewell SB, Du L, Fierro JM, Gomes XV, Godwin BC, He W, Helgesen S, Ho CH, Irzyk GP, Jando SC, Alenquer ML, Jarvie TP, Jirage KB, Kim JB, Knight JR, Lanza JR, Leamon JH, Lefkowitz SM, Lei M, Li

Principal Investigator/Program Director (Last, First, Middle):

J, Lohman KL, Lu H, Makhijani VB, McDade KE, McKenna MP, Myers EW, Nickerson E, Nobile JR, Plant R, Puc BP, Ronan MT, Roth GT, Sarkis GJ, Simons JF, Simpson JW, Srinivasan M, Tartaro KR, Tomasz A, Vogt KA, Volkmer GA, Wang SH, Wang Y, Weiner MP, Yu P, Begley RF, Rothberg JM. 2005. Genome sequencing in microfabricated high-density picolitre reactors. Nature Jul 31 (epub ahead of print).

Patents (issued)

1. Bader JS, Rothberg JM, Deem MW, Mulhern GT, Went GT. Separation of Charged Particles by a Spatially and Temporally Varying Electric Field. US Patent 5938904 issued Aug 17, 1999.
2. Jarvie TP, Bader JS, Went GT. Method for Distance Measurements with Solid-State NMR. US Patent 6027941 issued Feb. 22, 2000.
3. Bader JS, Rothberg JM, Deem MW, Mulhern GT, Went GT, Simpson J, Henck S. Separation of Charged Particles by a Spatially and Temporally Varying Electric Field. US Patent 6193866 issued Feb 27, 2001.
4. Rothberg JM, Bader JS. Method of sequencing a nucleic acid. US Patent 6274320, issued Aug 14, 2001.