# Summary

Nathan A. Baker, Ph.D. is a Laboratory Fellow at Pacific Northwest National Laboratory and lead of the [Signature Discovery Initiative](http://signatures.pnl.gov). He is currently Chair for the ASTM E56.01 Subcommittee on Nanotechnology Informatics and Terminology, co-chair of the [United States-European Union Community of Research for Nanotechnology Databases and Ontology](http://www.us-eu.org), and served as Lead for the National Cancer Informatics Program [Nanotechnology Working Group](http://sites.google.com/site/cabignanowg/) from 2009-2013. Dr. Baker has served on numerous review panels for agencies including NIH and NSF and is currently a member of the NIH Macromolecular Structure and Function D study section. Dr. Baker is the Editor-in-Chief for the Computational Science and Discovery journal, serves on the editorial board for Biophysical Journal, is a member of the Faculty of 1000 Biology, is a Section Editor for Annual Reports in Computational Chemistry, and has served as a panelist and review for the National Academy of Sciences National Research Council. Dr. Baker’s research is in the area of computational biophysics, nanotechnology, and applied mathematics. He is actively involved in the development of new algorithms and software for computational biology and modeling in support of these research projects, including development of the APBS and PDB2PQR biomolecular electrostatics software packages, used by over 20,000 researchers worldwide, and the NanoParticle Ontology, one of the first and largest ontologies for nanotechnology research. Dr. Baker is the author of over 70 articles as well as several reviews and book chapters. He is a Fellow of the American Association for the Advancement of Science, has been awarded the Hewlett-Packard Junior Faculty Excellence Award by the American Chemical Society, the National Cancer Institute caBIG® Connecting Collaborators Award, and an Alfred P. Sloan Research Fellowship.

# Professional experience

2012-present Laboratory Fellow, Computational and Statistical Analytics Division, Pacific Northwest National Laboratory

2010-2012 Chief Scientist, Computational and Statistical Analytics Division, Pacific Northwest National Laboratory

2006-2010 Associate Professor with tenure, Department of Biochemistry and Molecular Biophysics, Washington University in St. Louis School of Medicine

2002-2010 Assistant Professor, Department of Biochemistry and Molecular Biophysics, Washington University in St. Louis School of Medicine

# Selected other activities

2013-present co-PI and Project Manager, CM4: Collaboration on Mathematics for Multiscale Modeling of Materials, DOE ASCR. $6M/5-year project. Provide scientific direction, working with PI Karniadakis, identifying application research priorities and staff hiring needs; manage budget, personnel, and project deliverables.

2012-present Lead, Signature Discovery Initiative, Pacific Northwest National Laboratory. $16M/6-year/20-project research portfolio. Provide scientific leadership, working with Lab leadership, identifying application research priorities and staff hiring needs; manage budget, personnel, and project deliverables; mentor junior staff on career growth and related activities; build scientific community and partnerships in the field of signature discovery; actively interact with potential sponsors for long-term external support.

2012-present Co-chair, United States-European Union Community of Research on Nanomaterial Databases and Ontology. Sponsored by US State Department, White House Office of Science and Technology Policy, and European Commission. Develop international research agenda to foster collaboration and growth of computational approaches to archiving, sharing, and analyzing nanotechnology data for safer nanomaterials; scientific diplomacy to build a community of interest while respecting multi-cultural research needs and collaboration perspectives.

2009-2013 Lead, National Cancer Informatics Program (formerly caBIG) Nanotechnology Working Group, National Cancer Institute. Grew a diverse international community of nanotechnology researchers from academia, industry, and government from an initial team of 5-10 to a current group of 20-30 participants; provided definitions and research priorities for the field of nanotechnology informatics; developed vocabulary and data-sharing standards for the nanotechnology community.

2007-2010 Director, Molecular Biophysics Graduate Program, Washington Univ. in St. Louis. Directed the PhD program in molecular biophysics: Supervised approximately 20 students and over 20 affiliated faculty; oversaw recruiting; provided admissions reviews; developed course curriculum; resolved faculty-student conflicts.

2005-2010 Director, Siteman Center for Cancer Nanotechnology Excellence Biocomputing Core, Washington Univ. in St. Louis. Create and sustain a computational core to support analysis and archival of data related to cancer imaging and nanomedicine development. Directly supervise systems administrators and work with them to select the best computational platforms for scientific mission.

2002-2010 Core member, Center for Computational Biology, Washington Univ. in St. Louis. Work with other core faculty to set scientific vision for Center, identify hiring needs, recruit new faculty, and negotiate space and infrastructure upgrades with University administration. Directly supervised 3 systems administration staff and jointly supervised administrative assistant for Center.

# Selected honors

2012 Fellow, American Association for the Advancement of Science

2010 National Cancer Institute Cancer Biomedical Informatics Grid (caBIG®) Connecting Collaborators Award

2007 Hewlett-Packard Junior Faculty Excellence Award, American Chemical Society

2004-2006 Research Fellow, Alfred P. Sloan Foundation

1997-2001 Predoctoral fellowship, Howard Hughes Medical Institute

1995-1997 Undergraduate fellowship, Barry M. Goldwater fund

# Education

2001-2002 Postdoctoral researcher: University of California San Diego, J. Andrew McCammon research group (Department of Chemistry)

2001 PhD, Physical Chemistry: University of California San Diego, J. Andrew McCammon (Department of Chemistry) and Michael Holst (Department of Mathematics) research groups. Kamen award for best PhD thesis in the biological sciences.

1997 BS, Chemistry: University of Iowa, Daniel Quinn (Department of Chemistry) research group. Honors and highest distinction.