

**BIOGRAPHICAL SKETCH**

Provide the following information for the Senior/key personnel and other significant contributors.  
Follow this format for each person.

<u>NAME</u> <b>Darsey, Jerry A.</b>		<u>POSITION TITLE</u> Professor of Chemistry	
eRA COMMONS USER NAME (credential, e.g., agency login)			
<u>EDUCATION/TRAINING</u> (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)			
<u>INSTITUTION AND LOCATION</u>	<u>DEGREE</u> (if applicable)	<u>MM/YY</u>	<u>FIELD OF STUDY</u>
Louisiana State University	BS	01/70	Physics
Louisiana State University	PhD	09/82	Physical Chemistry

**Personal Research Statement:**

[I will serve on the Research Development Committee for the proposed Developmental Research Project Program.](#)

I am a Professor in the Department of Chemistry at the University of Arkansas at Little Rock and Adjunct Professor in the Department of Biopharmaceutical Sciences at the University of Arkansas for Medical Sciences in Little Rock, Arkansas. I also have consulted for the FDA at the National Center for Toxicological Research, and I am inventor or co-inventor on seven patents issued by the United States Patent and Trademark office. I have authored or co-authored approximately 130 manuscripts in the fields of molecular modeling, neural network simulations, conformational modeling of polymers and proteins, and Monte-Carlo modeling, as well as a book, which is in final revision, on applications of neural networks to molecular and biomolecular systems. I have given more than 300 presentations at regional, national, and international meetings. My research interests are primarily in computer modeling techniques of atomic and molecular systems for the elucidation of their chemical and physical properties, but I am also interested in bioinformatics and am involved in several such projects with medical applications. My research in drug design uses techniques pioneered in my laboratory that involve artificial intelligence procedures and quantum mechanical simulations. I also work in the area of nanotechnology to model atomic and molecular nanoclusters for developing new materials to enhance hydrogen storage. As either a Principal Investigator or Co-Principal Investigator, I have received more than \$2.5 million in external funding from NASA, Department of Energy, Arkansas Science and Technology Authority, American Chemical Society-Petroleum Research Fund, Michael J. Fox Foundation for Parkinson's Disease, and others.

**B. Positions and Honors:****Positions and Employment**

1996-present	Professor, Chemistry Department, University of Arkansas at Little Rock, Little Rock, AR
1996-present	Professor of Chemistry Joint Appointment, Department of Biopharmaceutical Sciences, University of Arkansas for Medical Sciences, Little Rock, AR
1996-present	Professor of Chemistry Joint Appointment, Department of Applied Sciences, University of Arkansas at Little Rock, Little Rock, AR
2003-2011	Consultant, FDA Laboratories, National Center for Toxicological Research, Jefferson, AR
1993-1996	Associate Professor of Chemistry, University of Arkansas at Little Rock, Little Rock, AR
1991-1995	Visiting Associate Professor of Chemistry, Oak Ridge National Laboratory, Oak Ridge, TN (summers)
1999- 2000	Visiting Professor of Chemistry, John L. McClellan Veterans Hospital, Little Rock, AR
1990- 1993	Assistant Professor of Chemistry, University of Arkansas at Little Rock, Little Rock, AR
1995-1996	Associate Professor of Chemistry Joint Appointment, Department of Biopharmaceutical Sciences, University of Arkansas for Medical Sciences, Little Rock, AR
1988- 1990	Associate Professor of Chemistry, Tarleton State University, Stephenville, TX
1987, 1988	Visiting Assistant & Associate Professor of Chemistry, Cornell University, Ithaca, NY(Summers)
1986	Visiting Assistant Professor of Chemistry, Oklahoma State University, Stillwater, OK (summer)

1984-1990 Assistant & Associate Professor of Chemistry, Tarleton State University (Texas A&M University System), Stephenville, TX

### Honors

1995 Chairman, Chemistry Section, Arkansas Academy of Science 78th Annual Meeting  
2008 Organizing Chairman for Regional American Chemical Society Meeting, Little Rock, AR (Atomic and Molecular Modeling and Simulation)  
2000 Selected by the International Biographical Center in Cambridge England, biography to be included in The 2,000 Eminent Scientists of the 21<sup>st</sup> Century, 1st Edition  
2006 Invited Lecturer, Polymer Division Royal Australian Chemical Institute  
2014 Session Chairman and Invited Speaker, 2<sup>nd</sup> International Symposium on Energy Challenges and Mechanics, Aberdeen Scotland, UK 19-22 August, 2014.  
2001-2014 Marquis Who's Who in the World  
1999-2014 Marquis Who's Who in Science and Technology

### Other Experience and Professional Memberships:

#### **Reviewer for the following Professional Journals**

*Macromolecules*

*Journal of Chemical Education*

*Journal of Computational Polymer Science*

*Journal of Physical Chemistry*

*Journal of Chemical Physics*

*Journal of Fluorine Chemistry*

*Journal of Chemical and Engineering Data*

*Journal of the American Chemical Society*

*Particle Science and Technology*

*Canadian Biosystems Engineering/Le genie des biosystemes au Canada*

#### **Professional Memberships**

American Chemical Society (ACS)

Polymer Division

Physical Chemistry Division

Industrial and Engineering Chemistry Division

Advanced Materials and Nanotechnology Division

Central Arkansas Section of the American Chemical Society (Past Chairman)

Sigma Xi (National Scientific Research Society)

Phi Lambda Upsilon (National Honor Chemistry Society)

American Association for the Advancement of Science (AAAS)

Society of Plastic Engineers (SPE)

National Space Society

#### **C. Selected Peer-reviewed Publications (Selected from ≈130 publications)**

##### Some related publications:

1. Harris, A.L. and **Darsey, J.A.** "Application of Neural Networks to Atomic and Molecular Collisions", 65<sup>th</sup> Gaseous Electronics Conference, Austin, Texas, 22-27 October 2012, [*Bull. Am. Phys. Soc.* 57, (2012)].
2. Hartman J.H., Cothren S.D., Park S.H., Yun C.H., **Darsey J.A.**, Miller G.P. Predicting CYP2C19 Catalytic Parameters for Enantioselective Oxidations Using Artificial Neural Networks and a Chirality Code. *Bioorg Med Chem.* 21 (2013) 3749–3759. PMID: PMC3674096
3. Harris, A.L. and **Darsey, J.A.** Applications of artificial neural networks to proton-impact ionization double differential cross sections, *Eur Phys J. D* 67 (2013) 130.
4. William O. Griffin, Josh Hanna, Svetlana Razorilova, Mikhael Kitaev, Avtandiil Alisherov, **Jerry A. Darsey**, Olga Tarasenko. An Artificial Neural Network Evaluation of Tuberculosis Using Genetic and Physiological Patient Data. *AIP Conference Proceedings*, 1229 (2010) 49-53.

5. W.O. Griffin and **J.A. Darsey**, Bulk Metallic System Modeling of Metal Hydride Dimer and Trimer Nanoclusters. *J Comput Theor Nanosci.* 7 (2010) 1-6.
6. Sushma Thotakura, **Jerry A. Darsey**. Modeling studies of Geldanamycin and similar compounds to treat Parkinson's disease. In *BMC Bioinformatics, Proceedings of the Seventh Annual Conference of the Mid South Computational Biology and Bioinformatics Society* (2010).

#### **D. Research Support:**

##### **Ongoing Grant Support**

UALR Sustainability Committee  
Sustainable Biofuels from Agricultural Waste Materials  
Darsey (PI) 4/15/2013- 5/15/2014  
This project concerns the conversion of agricultural waste materials into usable fuels. It takes the material generally left in the fields after a harvest and uses a digestive process to convert the material into sugars. The sugar is then fermented to produce ethanol to be blended with gasoline.  
Role: PI

Michael J. Fox Foundation for Parkinson Disease  
Computational Modeling Approach for the Design of Peptide Blocking Biomarkers for Parkinson's Disease and Alzheimer's Disease  
Darsey (PI) 7/2014- 8/2016  
This project involves the modeling of proteins involved in the two neurodegenerative diseases Parkinson Disease and Alzheimer's Disease. There are several proteins that are common to both diseases which will be modeled for development of drug molecules to be used in both diseases treatment  
Role: PI

NSF/MRI 1338102  
MRI: Acquisition of a Cloud Computing Infrastructure for Research and Education  
Yu (PI) 9/2013- 9/2016  
This project involves the funding of additional processing power for the existing HPC computers located on the UALR campus to interact with the "Cloud" used to store and retrieve massive amounts of data.  
Role: Co-PI

NSF/MRI  
MRI: Acquisition of Dynamically Reconfigurable High Performance Storage Systems for Big Data Exploration in STEM Fields.  
Yoshigoe (PI) 9/2014-9/2017  
This project involves the obtaining additional storage memory to be attached to the existing High Performance Computers currently used on the UALR campus.  
Role: CoPI

#### **Patents:**

1. Apparatus and Methods of High Throughput Generation of Nanostructures by Inductive Heating and Improvements of Productivity while Maintaining Quality and Purity, 60-571999, (2004).
2. Surface Modified Single Walled Carbon Nanotubes Optical Sensors and Methods of Manufacturing. 8-202004, (2004) .
3. Apparatus and Methods for Synthesis of Large Size Batches of Carbon Nanostructures. 60-611018, (2004).
4. Nanotube-Porphyrin Molecule Compounds and photovoltaic and circuit applications, 60-609506, ( 2005).
5. Production of Carbon Nanostructures by Curie Point Heating, 60-638243, (2005). 2005.
6. Nanotubes for Cancer Therapy and Diagnostics, 7-824-660-B2,( 2010).