Rex E. Gerald II

Currently Chemical Physicist/Inventor, Electrochemistry NMR, Chemical Engineering Division, Argonne National Laboratory, Argonne, Illinois

2001-2002 The University of Chicago, Chicago, Illinois
NMR Consultant**,** Solution State NMR, Department of Biochemistry and Molecular Biology

1994-present Argonne National Laboratory, Argonne, Illinois
- Chemical Physicist/Inventor**,** Electrochemistry NMR, Chemical Engineering Division
- Assistant Manager, NMR Facility, Chemistry Division
- Assistant Chemical Physicist, NMR Electrochemistry and Nuclear Materials, Chemical Engineering Division
- Postdoctoral Fellow, NMR, Electrochemistry and Nuclear Materials, Chemical Engineering Division
- Postdoctoral Fellow, NMR Spectroscopy and Imaging, Chemistry Division

1989-1990 Max-Planck-Institute, Heidelberg, Germany
Max-Planck-Institute Fellow in Molecular Physics

1986-1988 Amoco Research Center, Naperville, Illinois
NMR Spectroscopist

1985-1986 Velsicol Chemical Corporation, Chicago, Illinois
Synthetic Organic Chemist

1983-1985 The University of Chicago/Argonne National Laboratory
Research Assistant in Nano- and Pico-Second Laser Spectroscopy

EDUCATION

Ph.D., Physical Chemistry, University of Illinois-Chicago (1988-1994)
- Conjoint Thesis, Molecular Physics, Max-Planck-Institute, Heidelberg, Germany

B.A., Chemistry, The University of Chicago (1984)
- NSF fellow in Physical Chemistry at University of Chicago (1984-1985)

AWARDS AND HONORS

- BrainPool Award, Korea Science and Engineering Foundation (KOSEF), Pure Science Section (2006)
- Visiting Scientist, Korea Basic Science Institute, 2005–Invited Lecturer
    - Overview of Toroid Cavity Detectors for NMR Spectroscopy and Imaging
    - NMR Imaging of Confined Guest Molecules in Aluminum Oxide Nanopores
    - Application of the Near Electrode Imager for In Situ Electrochemical/NMR Studies
    - Investigations of a Lithium-Ion Battery Using the Compression Coin Cell NMR Detector
    - NMR Studies of SAMs on Liquid Metal Surfaces Using a Novel Toroid Cavity Detector
    - Toroid Cavity/Coil NMR Multi-Detectors for High-Throughput Sample Analysis
    - The Molecule Nanoweaver: A New Approach for Fabricating NanoTech Films
    - Conventional Binary Polymer Electrolyte with Hitch: An Entangled Composition
    - Synergy Hybrid-Electrolyte: A New Idea for a Fast Ion Conductor
    - The Invention Process at Argonne National Laboratory: Selected Accounts from the Toroid Cavity Detector Portfolio

    - Chemical Shift Surfaces: A Pictorial Representation of the Anisotropic Nature of a Second-Rank Tensor
    - Alumina Membranes and Nanoparticles for Solid-State Ion Conductors (KICET Seminar)
- ComEd-100 Illuminator Award for Outstanding Illinois High-School Mentor, Exelon Company (2004)
- United States Department of Energy Award for Outstanding Undergraduate Mentor (2004)
- Visiting Scientist, University of Bonn, Institute of Physical and Theoretical Chemistry, 2000–Invited Lecturer
    - New TCD Inventions for NMR Investigations at Electrode Surfaces
    - A Mathematical Description and Visualization of Second-Rank Tensors
    - Passively Shimmed Toroid Cavity Detectors
    - A New NMR Detector for Investigations of SAMs
    - Coin Cell Battery NMR Imager
- Predoctoral Fellow Award, Max-Planck-Institute, Heidelberg (1990)
- Allied Signal Fellow (1988)
- Predoctoral Fellow Award, National Science Foundation (1984)
- Sigma Xi First Place for Undergraduate Research, The University of Chicago (1984)
- General Honors and Special Honors, The University of Chicago (1984)
- Award for High Scholarship, The University of Chicago (1981-1984)

PROFESSIONAL SOCIETY ACTIVITIES

Groupement AMPERE