Dr. Daniel L. Akins has been a Professor of Chemistry at The City College of New York since 1981, and director of the CUNY-Center for Analysis of Structure and Interfaces since 1988.

**Dr. Akins** has been a Professor of Chemistry at The City College of New York since 1981, and director of the CUNY-Center for Analysis of Structure and Interfaces since 1988.

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### Publications


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### Research Interests

**Keywords:**

Syntheses of semiconductor and magnetic oxide nanoparticles and nanorods; spectroscopic and dynamical investigations of spontaneous and nonlinear laser Raman scattering by monomeric and aggregated molecules on surfaces; excited state dynamics and determination of photophysical parameters for cyanine dyes and donor-acceptor Systems; quantum chemical calculations of porphyrins and dye molecules.
Prof. Biscoe is an organic/organometallic chemist interested in the development of new reaction methodologies for application in drug discovery.

Research Interests

Keywords: Transition metal catalysis, Organic synthesis, Asymmetric synthesis

Broadly, research in the Biscoe group focuses on catalysis. The two major types of catalysis in which we are interested are transition metal catalysis and macromolecular catalysis. Our primary goals involve the development of practical and reliable processes for the construction of C–C and C–X (X = heteroatom) bonds. We are particularly interested in the development of new processes for the formation of common structural motifs of importance in medicinal chemistry and drug discovery.

Publications


Dr. Zimei Bu

is a molecular biophysicist at City College

Zimei Bu  
Associate Professor
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http://www.sci.ccny.cuny.edu/~zbu/

Publications


Research Interests

Keywords: Cell signaling, cell adhesion, intracellular trafficking of membrane receptors, neutron scattering, protein dynamics

Research Projects include:
1. Structure, dynamics, and assembly of transmembrane cell adhesion molecules and receptors;
2. Protein-lipid interactions;
3. How intracellular adapter proteins influence the trafficking, assembly and function of transmembrane receptors;
4. Small angle X-ray and neutron scattering;
5. Quasielastic neutron scattering, neutron spin echo spectroscopy.
Prof. Champeil is a synthetic chemist interested in the DNA alkylating drug Mitomycin C (MC). She synthesized MC-DNA Interstrand crosslinks to determine how the local structure of these adducts is responsible for the different biochemical responses produced by cancer cells upon treatment.

Research Interests

Synthesis of Mitomycin C and Decarbamoyl mitomycin C DNA adducts: Our aim is to synthesize DNA interstrand crosslinks generated by decarbamoyl mitomycin C (DMC) and mitomycin C (MC) (MC α-ICL and DMC β-ICLs). In addition, the role of p21 in the upstream p53-independent signaling pathway in response to these crosslinks is examined.

Analysis of drugs (recreational and medicinal) in bio fluids using NMR spectroscopy.

Publications


Maria Contel is an inorganic/organometallic synthetic chemist. Her main interests lie on the rational design of metallo-drugs and homogeneous catalysts.

### Research Interests

**Keywords:** Organometallic, Cancer, Antimicrobial, Gold Catalysis, Water-soluble, C-C and C-Heteroatom Bond formation

Our group is focused on the synthesis of metallo-drugs as anticancer and antimicrobial agents with a special interest on heterometallic gold-based compounds. We study the biological activity and possible mode of action of the compounds (in our own cell culture room). We use gold derivatives in homogeneous catalysis and we study the possible mechanism of these catalysts by using different techniques.

### Publications


Dr. Ruel Desamero

Dr. Desamero is a spectroscopist by training currently investigating protein-ligand interaction as well as protein-protein aggregation using various techniques.

Ruel Z. B. Desamero
Associate Professor
York College, the Institute of Macromolecular Assembly, and the Graduate Center
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www.cuny.edu/xxxx

2010 - current  Associate Professor, York College - CUNY
2003 - 2010  Assistant Professor, York College - CUNY
2000 - 2002  Postdoc, Albert Einstein College of Medicine
1998 - 2000  Postdoc, City College - CUNY
1998  PhD, University of Connecticut

Publications


Research Interests

Keywords: vibrational spectroscopy; fluorescence; circular dichroism; temperature-jump techniques; structural biology; protein biochemistry; enzymology

My research is centered on investigating the structural and dynamical aspects of protein-small molecule interactions using techniques such as vibrational spectroscopy and temperature-jump relaxation. One aspect of the work is to understand at the molecular level how protein systems work. Enzyme-substrate interactions have long been recognized as representing an extreme expression of structural complementarities in biological chemistry. Basic research geared towards understanding the inner workings of an enzyme system is important if cures for the diseases caused by a malfunctioning or deficient enzyme are to be found. We have also started investigating the mechanism behind amyloid formation with the goal of synthesizing peptide inhibitors that diminish protein aggregation.
Dr. Terry Dowd is involved in two areas of research. One area is the alteration in bone mineral properties in disease. The second project involves alterations in structure–function relationships in the gap junction molecule Connexin in deafness, neuropathy and skin disease.

2014- current  Associate Professor
2005  Assistant Professor
1992-1996  Instructor
1986-1992  Postdoc
1986  Ph.D.

Publications


Research Interests

My research involves investigating the role of the bone protein osteocalcin in bone mineral diseases such as Pb2+ toxicity, low Mg2+ diets and diabetes. The research involves multiple techniques such as atomic absorption, FTIR Imaging and microCT to investigate alterations in mouse bone mineral properties. The second project involves NMR structural-functional studies of the gap junction molecule Connexin in health and diseases such as deafness, fatal skin disease and neuropathy. The project uses 2D NMR techniques on a high field magnet and electrophysiological techniques characterizing the mutant gap junction channels.
CM Drain is chair of the Department of Chemistry at Hunter College with research in supramolecular materials, photonics, phototherapeutics, and medical photo-diagnostics

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Hunter College & Rockefeller University
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1996- present  Professor, Hunter College CUNY
1990- present  Adj. Faculty, Rockefeller University
1990-1993  Postdoc, Univ. of Strasbourg, France
1984-1988  PhD, Tufts University

Publications


Research Interests

Keywords: porphyrins, photophysics, phototherapy, nanotechnology, supramolecular

Bottom-up self-organization of functional photonic materials composed of porphyrinoid dyes allows fabrication of next generation sensors, solar energy harvesting, and biomedical devices. Click-chemistry makes the dye commercially viable, and the fundamental photophysical properties of these materials guides development of more efficient dyes. (2) Porphyrinoid dyes are being developed as theranostics (the same compound is used for both therapy and diagnostic) for photodynamic therapy of diseases such as cancer. (3) Biomedical applications of nanoparticles composed of organic and inorganic materials, including radiolabeled materials, for imaging and therapy are being developed in collaboration with Researchers at Memorial Sloan Kettering and Rockefeller University.
Emilio Gallicchio’s research is in the area of computational molecular biophysics. He uses advanced computational models to investigate the dynamics and thermodynamics of biological systems.

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Assistant Professor
Department of Chemistry, Brooklyn College
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Research Interests

- Thermodynamics of protein-protein and protein-ligand binding
- Virtual drug screening
- Protein conformational equilibria
- Statistical thermodynamics of protein folding and misfolding
- Thermodynamics of solvation of biological macromolecules
- Force field development and high resolution protein modeling
- Design of high performance computational chemistry algorithms
- Parallel and distributed computing

Publications


Dr. Kevin H. Gardner

The Gardner lab studies how cells perceive and respond to changes in the environment around them. Such information provides insights into fundamental principles of protein structure and signaling, guides the engineering of new protein-based tools, and lays the foundation for new therapeutic strategies.

Kevin H. Gardner
Director, Structural Biology Initiative
CUNY Advanced Science Center, Room 3.322
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structbio.asrc.cuny.edu • kglab.org

Research Interests

Keywords: environmental sensing • protein/protein interactions • ligand binding • allostery • NMR spectroscopy • X-ray diffraction • biochemistry • photosensors • cancer • protein engineering
The Gibney Lab uses metalloprotein design to investigate the fundamental engineering of biological systems. These studies provide insight into metal-induced protein folding, heme electrochemistry, and the role of chemically modified hemes in biology.

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http://www.biochemistry.nyc

2008- current  Associate Professor Brooklyn College
2005-2008  Associate Professor Columbia University
2000-2005  Assistant Professor Columbia University
1995-2000  NIH Postdoc University of Pennsylvania
1990-1995  PhD University of Michigan
1986-1990  BS (ACS Certified) Florida State University

Research Interests

Keywords: De novo metalloprotein design, inorganic coordination chemistry, biophysics, bioenergetics, electrochemistry

Our research focuses on the role of metal ions in biological systems from both an inorganic coordination chemistry and biophysical perspective. We are currently investigating the role of zinc in controlling gene expressions in human cancer, and the role of heme proteins in cardiovascular disease.

Publications


Gibney, B.R. Metallopeptides as Tools to Understand Metalloprotein Folding and Stability in Protein Folding and Metal Ions – Mechanisms, Biology and Disease, Gomes, C and Wittung-Stafshede, P. Eds. 2011, 227-245.


Dr. Michael Green

Dr. Green is a computational chemist, with a principal interest in biophysical problems, especially related to a class of proteins, ion channels, responsible for the nerve impulse, among other things.

Michael E Green
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http://forum.sci.ccny.cuny.edu/people/science-division-directory/b009

Dr. Green has been a faculty member in Chemistry at CCNY since Sept 1966.

Publications


A. M. Kariev, P. Njau, and M. E. Green, "The Open Gate of the Kv1.2 Channel: Quantum Calculations Show The Key Role Of Hydration," Biophys J. (2014). 106, 548-555


Research Interests

Keywords: Quantum calculations, proteins, water structure, hydrogen bonds, salt bridges, membranes, water transport through membranes

Research Strategy: Primarily we carry out quantum calculations on overlapping sections of proteins, such as voltage sensing domains of ion channels, to determine structure, bonding, energetics, and transitions of protein, water, hydrogen bonds, and salt bridges, leading to mechanisms, for example, of sensing voltage.
Our key research areas are organic chemistry, synthesis, photochemistry, medical devices, drug design, lasers, green chemistry, nanotechnology.

Our work has focused on photosensitized oxidation reactions that are toxic to organisms and damaging to materials, and can be harnessed for applications such as the disinfection of water supplies. Because a critical need for mechanistic strategies that can generate photosensitized intermediates in a clean and pure fashion, our published results focus on the physical isolation of sensitizer and molecules at surfaces to “separate” singlet oxygen from other reactive oxygen species (ROS). We have a longstanding interest in photoxygen atom transfer processes related to thiophene sulfoxides and nitrosamines. Our work is also involved the synthesis and mechanistic studies of organic sulfanes related to natural product thianthrene, tetrathiocin, trithiole, and pentathiepin anticancer agents.

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Dr. Dixie J. Goss

Prof. Goss is a professor of Chemistry and Biochemistry and Elion Endowed Scholar

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http://www.hunter.cuny.edu/chemistry/faculty/Dixie/goss-group-1/resume

1990- current  Professor of Chemistry
1989-1990  Associate Professor of Chemistry
1984-1989  Assistant Professor
            Post-Doc.  U. of Nebraska and U. of Georgia
1975  Ph.D  U. of Nebraska

Research Interests

Keywords: protein synthesis, virus, protein-nucleic acid interactions

We use biophysical approaches to understand how non-coding regions of mRNA regulate function. Miss regulation of protein synthesis is responsible for many diseases including cancer. We are interested in how unique structures in viral RNA allow viruses to take over host cell protein synthesis.

Publications

Recruitment of 40S Ribosome to the 3' Untranslated Region (UTR) of a Viral mRNA, via the eIF4F Complex, Facilitates Cap-independent Translation.

Pokeweed antiviral protein, a ribosome inactivating protein: activity, inhibition and prospects.

Rapid kinetics of iron responsive element (IRE) RNA/iron regulatory protein 1 and IRE-RNA/eIF4F complexes respond differently to metal ions.

Eukaryotic initiation factor (eIF) 4F binding to barley yellow dwarf virus (BYDV) 3'-untranslated region correlates with translation efficiency.

Poly(A) binding proteins: are they all created equal?
Dr. Harding is a organic/medicinal chemist with interests in the design, synthesis and evaluation of ligands for central nervous system receptors.

Wayne W. Harding, PhD
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http://www.hunter.cuny.edu/chemistry/faculty/Harding/
Wayne

2013- current   Associate Professor, Hunter College
2006-2013        Assistant Professor, Hunter College
2004-2006        Postdoctoral Fellow, University of Iowa
1994-1999        Ph.D.

Publications


Research Interests

Keywords: Medicinal chemistry, drug design, organic synthesis, central nervous system, CNS, receptor, serotonin, dopamine
Dr. Qiao-Sheng Hu

Qiao-Sheng Hu is Professor and Chair of Chemistry Department at the College of Staten Island. His research is focused on the development of new reactions/processes and catalysts for chemical synthesis including polymer/materials synthesis.

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Professor and Chair
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2008- current  Professor, CSI-CUNY
2005-2007  Associate Professor, CSI
2000-2005  Assistant Professor, CSI
1997-2000  Postdoc, University of Virginia
1995-1997  Postdoc, North Dakota state Univ.

Research Interests

Keywords: catalysis, palladium, cross-coupling reaction, polymerization, conjugated polymers

The Hu group are interested in the development of new catalysts including transition metal and organic catalysts for cross-coupling reactions and addition reactions, and novel reactions/processes from readily available and cost-effective small organic molecules. These new reactions/processes and catalysts have potential applications in chemical synthesis and polymer/materials synthesis. The approach is interdisciplinary, ranging from fundamental understanding of reaction mechanisms, reaction methodology development to polymer/materials synthesis.

Publications


H.-H. Zhang, C.-H. Xing, Hu, Q.-S., Controlled Pd(0)/t-Bu_3P-Catalyzed Suzuki Cross-Coupling Polymerization of AB-Type Monomers with PhPd(t-Bu_3P)/ or Pd_2(dbau)_2/t-Bu_3P/Arl as the Initiator, J. Am. Chem. Soc. 2012, 134, 13156-13159.


Dr. David Jeruzalmi
Professor of Chemistry
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Research Interests

The faithful transmission of gene1c information is an important biological imperative. To carry out this function, organisms have evolved processes to replicate their genomes and defend them from attack. We study important mechanisms associated with the processes of DNA replication and repair. The central challenge in understanding these processes stems from the large size of the involved multi-protein DNA complexes; these entities also populate many conformational states. Together, these complications place limits on insights that can be revealed by static crystallographic structures or solution methods alone; both sources of information are essential for defining underlying mechanisms.

To this end, my group applies X-ray crystallography, supplemented with electron microscopy, to understand these long-standing problems in DNA biology. We also use biochemical studies to inform these approaches and follow up on the resulting insights.

Publications


Dr. Shi Jin

Dr. Jin is a physical/materials chemist who is working on structure design, synthesis, characterization and optimization of organic optoelectronic materials for improved performance in devices such as organic solar cells, light emitting diodes and field effect transistors.

2004-2011 Assistant Prof. of Chemistry, CUNY
2012-current Associate Prof. of Chemistry, CUNY

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Staten Island, NY 10314
shi.jin@csi.cuny.edu
http://www.csi.cuny.edu/faculty/JIN_SHI.html

Publications


Research Interests

Keywords: Soft Matter, organic optoelectronic materials
Dr. Andrei Jitianu

Jitianu's research is focused on materials chemistry, specifically on sol-gel chemistry with direct applications in anticorrosive, hermetic coatings and nanomaterials for electronic industry.

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http://www.lehman.edu/academics/chemistry/prof-jitianu.php

2013- current Associate Professor, Lehman College-CUNY
2008-2013 Assistant Professor, Lehman College-CUNY
2005-2008 Research Associate, Rutgers University
2002-2003 “Marie Curie” Postdoctoral fellow, University of Orleans, France
1996-2001 PhD student University of Bucharest, Romania

Publications


Research Interests

Keywords: Sol-gel, Nanocomposites, Hybrids Organic-Inorganic, Coatings,

My studies range from the elucidation of early stages of formation of the hybrid materials by sol-gel process to the design of hybrid nanocomposite materials with magnetic, gas-sensing, electric and optical properties. At Lehman my research was mainly focused to developing a new class of materials called Hybrid Melting Gels for hermetic applications in the microelectronics industry and for optical applications. Beside this, studies of nanoparticles or nanocomposites in different systems have been carried out.
Dr. George John

George John is a Professor of Chemistry/the Center for Discovery and Innovation, the City College of New York -CUNY. His research is focused on molecular design of synthetic lipids, membrane mimics, soft nanomaterials, green energy technologies and organic materials chemistry.

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2012- current  Professor of Chemistry, CCNY
2004-2012  Associate Prof. of Chemistry, CCNY
2002-2004  Research Faculty, RPI, NY
1996-2002  JSPS Fellow/Scientist, Japan
1994-1995  Postdoc, University of Twente, NL
1993  PhD Kerala University, India

Publications


Research Interests

Keywords: biobased materials, green chemistry, soft materials, biorefinery, biomimetics, phase selective gels, oil structuring agents (food/cosmetics), antibacterial coatings, battery components/energy storage, green surfactants

John’s research is rooted in the idea that innovation can be inspired by nature to develop economical and sustainable technologies for a greener future. The group has harnessed crop-based precursors such as sugars, fatty acids and plant lipids to design a unique set of multifunctional soft-materials including polymers, gels and green surfactants. His group has successfully developed environmentally benign antibacterial paints, polymer-coatings, molecular gel technologies, oil spill recovery materials, battery components and oil thickening agents. As soft materials research is highly interdisciplinary and collaborative, John’s lab encourages the blending of such diverse elements including organic synthesis, green chemistry, material chemistry, interfacial phenomena, colloid science and biomimetics.
Dr. Reza Khayat

Khayat group studies the structure and function of proteins encoded for and utilized by pathogens to infect and replicate. We use a combination of X-ray crystallography, cryo-electron microscopy, biophysics, biochemistry, and cellular biology to complete these studies.

Research Interests

Keywords: cryo-electron microscopy, X-ray crystallography, biophysics, biochemistry, cellular biology

We seek to understand the structural and chemical mechanism by which pathogens hijack the cellular machinery of their host for infection and replication. We use a combination of techniques to understand this mechanism at the atomic resolution to relate how chemistry drives biology, and a number of techniques to understand how biology feeds back into chemistry for new pathways to be exploited by the pathogen for infection and replication. We are also interested in developing computational methods to further combine X-ray crystallography with cryo-electron microscopy.

Publications


Mark Kobrak is a theoretical physical chemist with expertise in classical and quantum dynamics simulations. Current work centers on theoretical description of ionic liquids, and studies of solid-liquid interfaces.

Mark N. Kobrak
Professor
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http://userhome.brooklyn.cuny.edu/mkobrak/

2013- current  Professor, Brooklyn College
2006- 2013  Associate Professor, Brooklyn College
2001- 2006  Assistant Professor, Brooklyn College
2000-2001  Post-doctoral fellow, Notre Dame University and The Pennsylvania State University
1998-1999  Post-doctoral fellow, University of Houston
1992-1997  PhD, University of Chicago

Research Interests

Keywords: Ionic Liquids, interfaces, molecular dynamics, thermodynamics

The group’s interest in ionic liquids center on using both analytical and simulation techniques to understand this novel class of materials. The group has uncovered structure-property relationships relevant to both viscosity and solvent polarity in ionic liquids, aiding in the development of ionic liquids with optimal properties for applications of interest. Recent projects consider the use of ionic liquids for the extraction of metals from the aqueous phase. Additional interests center on using thermodynamics to understand solid-liquid interfaces. The results demonstrate linkages between macroscopically-observable properties such as surface tension and the microscopic structure of the interface.

Publications


Dr. Sanjai Kumar

**Dr. Kumar’s lab** studies chemical biology approaches to understand enzyme function involved in human diseases. Development of small molecule probes and sensors of protein kinases, protein tyrosine phosphatases, and cysteine proteases.

**Sanjai Kumar**
Associate Professor
Queens College, and Ph.D. Program in Chemistry, The Graduate Center of the City University of New York
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Queen, NY 11367
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http://chem.qc.cuny.edu/~skumar/

<table>
<thead>
<tr>
<th>2007- current</th>
<th>Associate Prof. of Chemistry, Queens College</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-2007</td>
<td>PostDoc, Albert Einstein College of Medicine</td>
</tr>
</tbody>
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**Publications**


Dibyendu Dana et al. "Development of a highly potent, selective, and cell-active Inhibitor of cysteine cathepsin L-A hybrid design approach" Chemical Communications (Camb) 2014, 50(74):10875-8

Ivone Gomes et al. "GPR171 is a Hypothalamic G Protein-Coupled Receptor for BigLEN, a Neuropeptide involved in Feeding" Proceedings of the National Academy of Sciences (PNAS) USA, 2013, 110(40), 16211–16216

Tirtha K. Da et al. “Centrosomal Kinase Nek2 Cooperates With Oncogenic Pathways To Promote Metastasis” Oncogenesis, 2013, 2, e69; doi:10.1038/oncsis.2013.34

Dibyendu Dana et al. Development of Cell-Active Non-peptidyl Inhibitors of Cysteine Cathepsins” Bioorganic and Medicinal Chemistry, 2013, 21, 2975-87

**Research Interests**

**Keywords:** Protein kinases, Nek2 kinase, Cathepsin L, Cathepsin B, PTP1B, Chemical Biology, Small molecule Probes and sensors

The research in Kumar’s laboratory spans at the interface of chemistry and biology, and is broadly focused on discovery of unknown enzyme function using chemical biology approaches. The current project includes the development of small molecule probes for protein kinases and protein tyrosine phosphatases, a critically important group of cellular signaling enzymes. The probes are then utilized to understand the enzyme function in both normal physiology and human diseases. Another important area of current interest is to develop appropriate chemical biology tools that can be utilized to probe the function of cysteine cathepsin enzymes in diverse cellular processes.

For more information, please visit the website.
Dr. Tom Kurtzman

The Kurtzman group focuses on the development of methodologies to characterize the structure and thermodynamics of water on the surface of proteins and exploitation of these properties for the discovery and design of new drugs.

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2010- Present Assistant Prof., Lehman College-CUNY
2008-2010 Assistant Prof., San José State Univ.
2007-2008 Visiting Professor, Yeshiva University
2004-2007 Postdoc Fellow, Columbia University
2002 Doctorate, Stanford University

Publications


*Formerly published as T. Young

Research Interests

Keywords: Solvation Thermodynamics, Statistical Mechanics, Computer Aided Drug Design

Research in the Kurtzman lab focuses on the development of computational tools that can aid in the discovery and rational design of new drugs. His approach applies statistical mechanical theory and computer simulations to better understand the physical principles that govern the molecular recognition between proteins and small molecule ligands (drugs). A particular emphasis is placed on the role that water plays in the molecular recognition process. A principal goal of this research is to help design and discover drugs that bind with high affinity and selectivity to given protein targets.
Dr. Michal Kruk

Michal Kruk is a professor in chemistry. His research interest is in design of well-defined nanoporous and nanostructured materials using surfactant micelle templating, nanocasting and controlled surface-initiated polymerization.

Publications


Research Interests

Keywords: ordered mesoporous materials, hollow nanoparticles, controlled surface-initiated radical polymerization

- Design of ordered nanoporous materials.
- Application of controlled polymerizations in the synthesis of nanostructured materials, including porous inorganic/polymer nanocomposites.
- Development of methods for accurate characterization of nanoporous materials.
- Synthesis of nanoporous materials with closed pores.
- Synthesis of single-micelle-templated hollow nanoparticles.
Dr. Mahesh Lakshman
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Dr. Lakshman is an organic/bioorganic chemist working in areas of (a) nucleoside modification by metal catalysis and uncatalyzed methods, (b) chemical carcinogenesis, (c) unusual applications of peptide coupling agents, (d) aryne chemistry, and (e) methodology.

Publications


Research Interests

Keywords: Metal catalysis, Nucleoside Modification, Biomolecules, Chemical Carcinogenesis

The program has many facets but can be broadly divided into the following areas.

A. Nucleoside modifications by new metal-catalyzed as well as novel uncatalyzed routes.
B. Unusual applications of peptide coupling agents.
C. Structural and biological effects of DNA modification by environmental pollutants.
D. Novel reactions involving arynes.
E. New chemical methodology development. Every aspect entails a detailed understanding of chemical process via mechanism studies involving techniques such as molecular spectroscopy, multinuclear NMR, and isotopic labeling.
The Lazaridis lab works in the area of theoretical and computational Biophysics. In the past few years we have worked on the interaction of proteins with biological membranes. We are especially interested in the process of pore formation by antimicrobial peptides and other toxins.


Research Interests

My research is in the area of Theoretical and Computational Biophysical Chemistry, which aims to understand how biological systems work in terms of the fundamental laws of Physics and Chemistry. Biomolecules, such as proteins and nucleic acids, have well defined conformations which often change in the course of their function. Our goal is to understand the forces that operate within and between biomolecules and develop quantitative mathematical models for their energy as a function of conformation. Such models are useful in many ways, such as predicting the three-dimensional structure from sequence, characterizing conformational changes involved in biological function, or predicting the binding affinity between two biomolecules.
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http://chem.qc.cuny.edu/~jliu/Liu_page/Liu_main.htm

Publications


Research Interests

Keywords: mass spectrometry, singlet oxygen, reaction dynamics/kinetics, spectroscopy

Our research focuses on using various instrumental analysis approaches (e.g., mass spectrometry, laser spectroscopy, and ion-molecule reactions) to probe biologically relevant processes in a spectrum of systems ranging from isolated biomolecules, through micelles and aerosols, to biomolecule solution. The experiments are complemented by extensive computational efforts including statistical modeling and dynamics simulations.

We are also active in discovering and developing new instrumentation methods and nanotechnologies.
Dr. Sharon Loverde

The Loverde laboratory utilizes all-atomistic (AA) and coarse-grained molecular dynamics (CG-MD) simulations, in combination with advanced sampling techniques, to investigate soft and biological materials.

Publications


Research Interests

Keywords: Molecular dynamics, molecular self-assembly, polymer membranes, cellular membranes, multi-scale models, polymers/biopolymers
Research Interests

Using natural surfaces as inspiration, the Lyons group fabricates nanoscale materials with unique wetting, catalytic, thermal and/or optical properties. We are especially interested in developing a fundamental understanding of reactions and properties at the solid-liquid-gas interface. We work closely with industry with the goal of transitioning our inventions into industrially relevant innovations; active projects include self-cleaning heat reflective cool-roofing materials, biological concentrators and anti-reflective self-cleaning coatings to increase the energy efficiency of photovoltaic panels.

Dr. Alan Lyons

Alan Lyons is Professor of Chemistry at the College of Staten Island and Graduate Center of CUNY. His research is focused on the effect of topography and chemistry on the wetting, thermal, optical and catalytic properties of surfaces.

Dr. Alan M. Lyons
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2008- current
Professor of Chemistry, College of Staten Island & Graduate Center CUNY.

1980-2008
Distinguished Member of Technical Staff, Manager & Group Leader, Bell Laboratories, Murray Hill NJ

1981-1987
PhD, MS, Polymer Chemistry NYU-Poly

Publications


Keywords: superhydrophobicity, wetting, polymer pen printing, photocatalysis, thermal resistance, interfaces
The Mallikaratchy group focuses on developing DNA aptamers as therapeutics, Cell-SELEX technology and DNA nanotechnology

Prabodhika Mallikaratchy
Assistant Professor
Lehman College
250 Bedford Park Boulevard West
Bronx, 10468 NY
prabodhika.mallikaratchy@lehman.cuny.edu
http://www.lehman.edu/academics/chemistry/prof_mallikaratchy.php

2010- Present  Assistant Professor, Lehman College CUNY
2008-2010  Assistant Professor, San Jose State Univ.
2003-2007  PhD, University of Florida, Gainesville

Dr. Prabodhika Mallikaratchy

Publications


Research Interests

Keywords: DNA aptamers, Cell-SELEX technology, DNA nanotechnology

Long-term goal of this laboratory is to develop oligonucleotide aptamer based synthetic antibodies for biological and biomedical applications. Therefore, this research program is aimed at generating new aptamers against biologically important cellular targets, and molecular engineering of multifunctional aptamer structures suitable for drug delivery.
Hiroshi Matsui
Professor
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New York, NY 10065
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http://www.hunter.cuny.edu/chemistry/faculty/Lou/Lou

Dr. Louis Massa

Publications


Research Interests

Keywords: differential equations, density matrices, density functional theory, Xray crystallography, kernel energy method, information theory,

Applications of Quantum Mechanics to the electronic structure of atoms, molecules, and solids.
Hiroshi Matsui
Professor
Hunter College / Weill Medical College of Cornell U
413 E. 69th Street
Belfer Research Building
New York, NY 10021
hmatsui@hunter.cuny.edu
www.hunter.cuny.edu/chemistry/faculty/Hiroshi/Hiroshi

2001- current Current position
1996-1999 Columbia University, Postdoc
1992-1996 Purdue University, PhD
1991-1992 Stanford University, MS

Research Interests

Keywords: Cancer Nanotechnology, Cancer Diagnostics/therapeutics, Lab-On-a-Chip, Medical Nanoparticles

1. Study of the effect on cellular structure by cancer metastasis.
2. Analysis of nanoscale vesicles released from cancer cells for diagnostics and therapeutics.
3. Electric silicon chip microfabrication for the detection of cancer and related cells.
4. Synthesis of nanoparticles in complex shapes for medical applications such as MRI contrast agents and drug delivery.

Publications


Aneta Mieszawska is an Assistant Professor in the Department of Chemistry at Brooklyn College. Her research is focused on nanomedicine and application of nanoparticle based systems for cancer detection and treatment.

Publications


Research Interests

Keywords: second generation nanoparticles, theranostics, biodegradable polymers, nanocrystals

The Mieszawska group research focuses on nanotechnology and nanomedicine with specific interest in designing and testing the nanoparticle systems for concurrent imaging and therapy of disease. These theranostic nanoparticles are based on slow releasing biodegradable and biocompatible polymers, such as PLGA or PLA, that encapsulate contrast agents and small drug molecules. The primary goal is to target and deliver efficacious therapy directly to cancer cells. This interdisciplinary research involves active collaboration with clinicians from Icahn School of Medicine at Mount Sinai.
Michael V. Mirkin is a professor of chemistry at CUNY-Queens College. His research interests are in the field of electrochemistry and include nano- and bio-electrochemistry, interfacial charge-transfer reactions, electrocatalysis, and scanning electrochemical microscopy (SECM).

Dr. Michael V. Mirkin
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CUNY-Queens College
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http://chem.qc.cuny.edu/~mirkinlab/mvm.html

Research Interests

Keywords: Electrochemistry/Physical/Analytical/Nano

We employ nanometer-sized electrochemical probes for molecular level characterization of chemical processes and materials. A wide variety of phenomena are studied including charge-transfer reactions at the solid/liquid and liquid/liquid interfaces, electrocatalysis, bioelectrochemistry, and electrochemical imaging. The main focus is on obtaining quantitative physico-chemical information by combination of experiments with mathematical modeling and computer simulations. We also maintain active interest in development of electrochemical techniques for analytical applications. These include carbon nanoprobe, amperometric nanosensors, and resistive-pulse sensors.

Publications


P. Sun and M.V. Mirkin, Electrochemistry of individual molecules in zeptoliter volumes, JACS, 2008, 130, 8241-8250.

Our research centers on the design, synthesis and application of biomechanistic probes, and the development of new synthetic methodologies.

Dr. David R. Mootoo
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1989- current  Professor
1986-1989  Postdoc, Duke University
1982-1986  Ph.D., University of Maryland

Research Interests

Keywords: synthesis, glycomimetics, tumor targeting, immunostimulants

An broad area of current interest is the design and synthesis of molecules for interrogating anti-cancer pathways. Two strategies that center on targeting cytotoxic agents to tumors and glycolipids that boost the immune system against cancer are being pursued. These projects entail the design and synthesis of novel small molecules and examination of their biological properties, in the context of specific disease mechanisms.

Publications


Dr. Ryan Murelli

Dr. Murelli is a trained synthetic organic chemist with interests in reaction development, total synthesis, medicinal chemistry and chemical biology. His primary research interest involves troponoids as therapeutic targets and is developing drugs for HIV, Herpes Simplex Virus Hepatitis B, and many more.

Ryan P. Murelli
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http://userhome.brooklyn.cuny.edu/rpmurelli/

2010- current  Assistant Professor, Boston College
2007-2010  Postdoctoral Associate, Yale University
2002-2007  PhD Student, Boston College

Research Interests

Keywords: Synthetic Organic Chemistry, Medicinal Chemistry, Chemical Biology

Our mission is to make fundamental contributions to synthetic organic chemistry, biology and medicine. To accomplish this, we seek out problems in medicinal chemistry and chemical biology that are in need of new synthetic organic chemistry developments. Thus, primary studies carried out by lab members range from reaction discovery and mechanism investigations to multi-step synthetic strategy developments. We simultaneously partner with experts in complementary fields in order to leverage these advancements in a broad range of interdisciplinary projects devoted to lead drug discovery and development.

Publications


Dr. Naphtali O’ Connor

Naphtali has a varied research background that reflects his wide research interests. His research ranges from developing biomaterials to designing molecular probes.

Naphtali O’ Connor
Assistant Professor
Lehman College, CUNY
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lehman.edu/academics/chemistry/prof-oconnor.php

2008- current
2007-2008
2000-2006
Current position
Postdoc/Columbia University
PhD/University of California, Irvine

Publications


Research Interests

Keywords: biomaterials, hydrogels, polymers

My current research focus is the development of materials for biomedical applications. We recently developed a method for preparing polysaccharide-polyamine crosslinked hydrogels. We are currently exploring their application as anti-microbial and wound healing materials. We are also working on the development of curcumin based biomaterials as antibacterial agents and cancer therapeutics.
Dr. Ralf M. Peetz

Ralf Peetz is interested in functional materials that could be of use in meeting future energy needs.

Publications

Sengupta, Arijit; Doshi, Ami; Jaekle, Frieder; Peetz, Ralf M., Journal of Polymer Science Part A (2015), accepted

Zhilin, Denis M.; Peetz, Ralf M., Journal of Chemical Education (2014), 91(1), 119-122

Sengupta, Arijit; Ghosh, Sutapa; Peetz, Ralf M., Synthetic Metals (2010), 160(17-18), 2037-2040

Burrows, Hugh D.; Narwark, Oliver; Peetz, Ralf; Thorn-Csanyi, Emma; Monkman, Andrew P.; Hamblett, Ian; Navaratnam, Suppiah, Photochemical & Photobiological Sciences (2010), 9(7), 942-948.

Mukherjee, Narayan; Peetz, Ralf M., Macromolecules (2008), 41(18), 6677-6685

Research Interests

Keywords: Functional Materials, Conjugated Polymers, Donor Acceptor Systems

We are currently interested in the controlled synthesis of donor-acceptor macromolecules for potential use in organic polymer photovoltaics. Some candidates featuring promising electronic properties and absorbing over a broad range of wavelengths are currently scheduled to be tested in prototype photovoltaic cells.
Dr. Sébastien Poget

Dr. Poget is interested in membrane protein structure and function, with a particular emphasis on the interactions between ion channel domains and animal peptide toxins.

Sébastien Poget
Assistant Professor
College of Staten Island, CUNY
Department of Chemistry
2800 Victory Blvd.
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www.csi.cuny.edu/faculty/POGET_SEBASTIEN.html

Publications


Research Interests

Keywords: Solution-state NMR, membrane protein structural biology, ion channels, toxins, electrophysiology, biophysics

The Poget lab is interested in the structural and functional study of membrane proteins through solution-state NMR and other biophysical methods. Our studies focus on better understanding the interactions of animal peptide toxins with their target ion channel domains as tools for an improved understanding of ion channel function and starting point for drug development. To carry out these studies at the cutting edge of structural biology, we are also involved in the development of new and improved methods for membrane protein studies, including development of more powerful membrane mimetics such as bicelles and optimized NMR methods.
Krishnaswami Raja is College of Staten Island Chemistry faculty working in the area of Bionanotechnology, Origin of life research and green drug discovery and development.

**Publications**


Raja, K.S.; Banerjee, P.; Lamoreaux, W.; Shi, W.; Auerbach, A.; “Novel Curcumin and Tetrahydrocurcumin derivatives” US patent number 8487139


**Research Interests**

Keywords: Origin of life, stigmergy scaffolds, 3D Cell culture, Ayurbiotecnology, Virus Chemistry, Bioconjugation, Green drug development, Polymer-protein hybrids

The Raja group is interested in creating programmable scaffolds for probing the origins of multi-cellular life, synthesis of well defined polymer-bionanoparticle/targeting protein hybrids and green drug discovery and development based on Ayurveda. The research spans the areas of small molecule and polymer synthesis, bioconjugation chemistry and bioengineering.
Dr. Kevin Ryan

Dr. Ryan’s lab applies chemical concepts to biological problems in two main areas, RNA and olfactory molecular recognition.

Kevin Ryan, Ph.D.
Associate Professor, Biochemistry Division
Department of Chemistry and Biochemistry
The City College of New York
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http://www.sci.ccny.cuny.edu/~kr107/index2/index.html

2009- current  Associate Professor
2003-2008  Assistant Professor
1996-2003  Postdoc, Columbia University (Chemistry and Biology Depts.)
1996  Ph.D., University of Rochester

Research Interests

Keywords: molecular recognition, olfaction, RNA, micro RNA, RNA interference, RNA polymerase III, chemical biology, transcription

In the RNA area, we study the use of chemically synthesized transcription templates as potential information-bearing molecules for producing small therapeutic RNA in human cells. A second RNA area is the biochemistry of RNA processing reactions that occur during the biogenesis of messenger RNA in human cells. In the olfaction area, we use pharmacology, organic synthesis and chemical biology to probe the biochemistry of the sense of smell.

Publications

Liu, M. T.; Nagre, N. N.; Ryan, K., Structurally diverse low molecular weight activators of the mammalian pre-mRNA 3' cleavage reaction. Bioorganic & Medicinal Chemistry 2014, 22 (2), 834-41;

Li, Y.; Peterlin, Z.; et al., Aldehyde Recognition and Discrimination by Mammalian Odorant Receptors via Functional Group-Specific Hydration Chemistry. ACS Chemical Biology 2014;

Lama, L.; Seidl, C. I.; Ryan, K., New insights into the promoterless transcription of DNA coliGo templates by RNA polymerase III. Transcription 2014, 5 (1);


Dr. Chwen-Yang Shew

Research Interests

Keywords: Statistical Mechanics, Computer Simulations, Soft Matters, Polymeric Materials, and Biopolymers

Our laboratory is focused on developments of statistical mechanics models to elucidate the thermodynamic properties and structure of polymeric materials and biopolymer systems. Our model studies have been extended to explore the role of the long-ranged electrostatic interaction on the self-assembly structure of like-charged macroions, the intramolecular self-assembly of a giant DNA, and the solution structure of polyelectrolytes. We are currently working on the structure of chromatin and nucleolus in the highly confined, crowded nucleus with applications to cancer cell diagnosis.

Publications


Dr. Ruth E. Stark

Dr. Stark’s biophysics research program focuses on the molecular structure and inter-actions of protective plant biopolymers, nutritionally important fatty acid-binding proteins, and melanin pigments associated with human fungal infections.

Ruth E. Stark
Distinguished Professor
City College Dept. of Chemistry and Biochemistry
CUNY Institute for Macromolecular Assemblies
CCNY CDI 1S-11302, 85 St. Nicholas Terrace
New York, NY 10031
Email rstark@ccny.cuny.edu
http://www.sci.ccny.cuny.edu/resgroup

2007 - current  CUNY Dist. Prof., CCNY
1985 - 2007  Assoc.-Dist. Prof., Coll. of Staten Island
1979 - 1985  Asst. Prof., Amherst College
1977 - 1979  Postdoctoral Fellow, M.I.T.
1977  PhD, Physical Chemistry, UC San Diego

Research Interests

Keywords: molecular biophysics, biopolymers, bioanalytical chemistry, solid- and solution-state NMR

The Stark Laboratory uses structural biology approaches to study plant protective polymers, lipid metabolism, and potentially pathogenic melanized fungal cells. Study of the molecular and mesoscopic architectures underlying the integrity of cuticles in natural and engineered tomatoes and potatoes is undertaken using solid- and solution-state nuclear magnetic resonance (NMR), mass spectrometry, and atomic force microscopy. Ligand recognition and peroxisome proliferator-activated receptor interactions of fatty acid-binding proteins are under investigation by solution-state NMR and isothermal titration calorimetry. The molecular structure and development of melanin pigments within fungal cells are probed using (bio)chemical synthesis and solid-state NMR.

Publications


Dr. Maria C. Tamargo

Maria C. Tamargo is Professor of Chemistry at the City College of New York. Her research is in semiconductor materials and nanostructures design, growth by epitaxial growth techniques, characterization methods, and applications.

Publications


Research Interests

Keywords: Molecular Beam Epitaxy, compound semiconductors, II-VI semiconductors, photonic devices, nanomaterials, topological insulators.

Materials growth, properties and applications of semiconductor multi-layered structures grown by molecular beam epitaxy (MBE). Areas of research activity include III-V compounds, strained-layer and short-period superlattices, surface and interface chemistry, visible light emitters, optoelectronic devices, wide bandgap II-VI compounds, II-V/III-V heteroepitaxy, low dimensional nanostructures, selective area epitaxy, intersubband devices, quantum cascade lasers, VECSELs, topological insulators.
Ming Tang is an assistant professor in the chemistry and biochemistry programs at CUNY. His long-term research endeavor is to investigate the function-modulating interactions between proteins and membrane components by solving structures of membrane-associated protein complexes and aggregates. The elucidation of such structure-function relationships will contribute tremendously to our understanding of how proteins interact with lipids and/or cofactors to operate.

**Research Interests**

Keywords: Membrane proteins, ion channels, amyloidogenic proteins, Phosphoinositide, solid-state NMR, protein aggregates, paramagnetic relaxation enhancement.

**Publications**


Dr. Micha Tomkiewicz

Micha Tomkiewicz is a professor of physics and chemistry at Brooklyn College and the school for Graduate Studies of the City University of New York. He served as founding-director of the Environmental Studies Program and the Electrochemistry Institute at Brooklyn College; was divisional editor, Journal of the Electrochemical Society (1981-91); chairman, Energy and Technology Division, the Electrochemical Society (1991-93); and member, International Organizing Committee of the conferences on Photochemical Conversion and Storage of Solar Energy (1989-92).

Micha Tomkiewicz
Professor
Brooklyn College of CUNY
Dept. of Physics, Brookln College of CUNY, Brooklyn, NY 11210
Michatom@Brooklyn.cuny.edu
http://academic.brooklyn.cuny.edu/physics/micha/

2015- current  Professor of physics and Chemistry, Brooklyn College, CUNY
1973 - 1976  IBM Thomas J. Watson
1971 – 1973  UC-Berkeley
1969  PhD - Hebrew University - Jerusalem

Research Interests

Keywords: Climate Change, Physics of Sustainability, Energy.

Environmental issues, science and society, photoelectrochemistry, electrochemistry, physics and chemistry of solid-liquid interfaces, morphology and transport properties of composite media, solar energy conversion and storage, photovoltaic devices, batteries.

Strategy: Students will learn how to do energy audits and carbon footprints on a variety of scales. Students will do longitudinal studies on the various components of the global efforts to change energy sources from reliance on fossil fuels to alternative energy sources.

Publications

Weekly blog on climate change at: http://climatechangefork.blog.brooklyn.edu/


Dr. Rein V Ulijn

Rein Ulijn is founding director of the nanoscience initiative at the Advanced Science Research Centre at CUNY and Professor of Nanochemistry at Hunter College. His research is focused on minimalistic molecular materials and adaptive systems that are inspired by biology.

Dr Rein V Ulijn
Director of Nanoscience
Einstein Professor of Chemistry, Hunter College
Advanced Science Research Centre
St Nicolas Terrace
New York NY
Rein.Ulijn@asrc.ac.uk
www.cuny.edu/arsc

2014- current Director of Nanoscience, ASRC
2008-2014 Professor of Nanochemistry, University of Strathclyde, Glasgow, UK
2003-2008 Associate Prof., U. of Manchester, UK
1998-2001 PhD University of Strathclyde, UK
1992-1998 MSc Wageningen University, NL.

Research Interests

Keywords: molecular systems, bionanotechnology, hydrogels, peptides, biocatalysis, adaptive materials

The Ulijn group are interested in the development of materials and systems that mimic biology's adaptive properties but are much simpler. These materials (including gels, emulsions, structured surfaces and nanotubes) have potential applications in health care, cosmetics, lifestyle products, food science. These applications are sought in active collaboration with researchers and companies across the globe. The approach is cross-disciplinary and covers the entire range from fundamental understanding to eventual applications and societal benefit.

Publications


Dr. Nan –Loh Yang

Nan-Loh Yang is a Professor of Chemistry at College of Staten Island. His research areas include: antimicrobial polymer nanoparticle; polymers with well-defined structure; and materials for nanoelectronics - giant dielectric constant element, fast cionductance switch, 4-stage memory and room temperature magnetoelectric coupling.

Publications


Research Interests

Keywords: Nanoeletronics, Superbugs killers, Photopolymers Novel Polycetals, Supercapacitor Fast Switch, Amphiphilic Polyelectrolytes, Micelles

Professor Yang’s research group is involved in developing amphiphilic non-hemolytic and antibacterial nanoparticle based structural tuning with optimizing hydrophobic – hydrophilic molecular topography. The nanoelectronics research exploits the characteristic of micell reactors and interfacial polymerization.
Dr. Barbara Zajc

Zajc is an organic/bioorganic chemist working in areas of (a) fluoroorganic chemistry, (b) chemical carcinogenesis, and (c) synthetic methodology.

Barbara Zajc
Professor
The City College of New York
Department of Chemistry
160 Convent Avenue
New York NY
bzajc@ccny.cuny.edu
http://www.ccny.cuny.edu/profiles/Barbara-Zajc.cfm

2013 Professor
2003 Associate Professor (CCNY)
2001 Assistant Professor (Substitute, CCNY)
1999 Associate Professor (Docent, U of Ljubljana)
1993 Assistant Professor (U of Ljubljana)
1991 Fogarty Fellow NIH (NIDDK)
1989 PhD

Publications


Research Interests

Keywords: Fluoroorganic chemistry, Biomolecules, Chemical Carcinogenesis

The research is focused in two main directions. One area involves development of methods for regiospecific introduction of fluorine into organic molecules. Here, an expanding toolbox of novel reagents for the synthesis of variously functionalized vinyl fluorides, highly versatile synthetic intermediates, is being developed. Another area of research involves the use of fluorine as probe in structure activity studies in the area of chemical carcinogenesis. Specifically fluorinated polycyclic aromatic hydrocarbons, their metabolites and their DNA conjugates are synthesized as probes to understanding cellular events after metabolism and DNA binding.
Prof. Zhang is an inorganic chemist who has broad research interests in inorganic/organometallic chemistry, non-precious metal catalysis and forensic chemistry, with a focus on the synthesis of novel organic-inorganic functional materials.

Guoqi Zhang
Assistant Professor
Department of Sciences
John Jay College of Criminal Justice
524 W 59th Street, 10019
New York NY
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http://www.jjay.cuny.edu/faculty/guoqi-zhang

2013- current Assistant Professor
2001-2006 Ph.D., Institute of Chemistry, CAS

Research Interests

Keywords: Inorganic/Organometallic Catalysis, Energy Conversion; Forensic Chemistry

Description of research activities and strategy:
Our research concerns over the design and synthesis of novel non-precious metal complexes and their applications in energy-related catalysis, supramolecular chemistry, anticancer drugs and forensic science.

Publications


Dr. Shengping Zheng

Our group focuses on the synthesis of bioactive heterocycles and their SAR studies.

Shengping Zheng
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Hunter College
695 Park Avenue
New York, NY 10065
szh0007@hunter.cuny.edu
http://www.hunter.cuny.edu/chemistry/faculty/Shengping/Shengping

2008- current  Assistant Professor, Hunter College
2005-2008    Postdoc, Columbia University
2000-2005    PhD, Columbia University

Publications


Research Interests

Keywords: Organic Synthesis, Anticancer, Antiviral, Heterocycles, Natural Products

1. New methodologies in heterocycle synthesis
2. Total synthesis of bioactive natural products
Dr. Shuiqin Zhou

Shuiqin Zhou is a Professor of Chemistry at CUNY College of Staten Island. Her research is focused on responsive polymer-nanoparticle (including carbon dots) hybrid nanogels, inorganic-carbon composite nanoparticles, and complex assembly of nanoparticles for sensing, imaging, drug delivery, and environmental remediation.

Publications


Research Interests

**Keywords:** responsive polymers, hybrid nanogels, nanoparticles, carbon dots, assembly, biosensing, drug delivery, cell imaging, environmental remediation

The Zhou group is interested in the development of (1) glucose-responsive hybrid nanoparticles (NPs) for glucose sensing and self-regulated insulin delivery; (2) multifunctional nanomaterials from the combination of optically active NPs with responsive polymers for sensing, imaging, and therapy; and (3) composite nanomaterials from the complex assembly of carbon-based NPs, inorganic NPs, and other amphiphiles in the confinement of (bio)polymers and colloids for sensing, catalysis, and environmental remediation.