Chemistry

Chemistry is called the central science because it not only impacts virtually all fields of science and technology but also because it is a central contributor to the modern life that society enjoys.

The PhD Program in Chemistry at the City University of New York (CUNY) provides students with a strong foundation in all areas of chemistry: analytical, biological, inorganic, materials, nano, organic, polymer, and physical.

CUNY prides itself on the diversity of its faculty and students. Each student chooses a research mentor from over 100 members of the CUNY doctoral faculty in Chemistry. These mentors are distributed among seven CUNY campuses and the CUNY Advanced Science Research Center that fosters interdisciplinary interactions. A flexible curriculum allows each student to personalize the coursework to their specific needs. Additional training in professionalism, safety, pedagogy, and career opportunities are provided to ensure your career success.

**Research Areas**

- Analytical Chemistry
- Biochemistry
- Biophysics
- Chemical Biology
- Computational Chemistry
- Inorganic Chemistry
- Materials Chemistry
- Medicinal Chemistry
- Nanoscience
- Organic Chemistry
- Organometallic Chemistry
- Polymer Chemistry
- Photochemistry
- Physical Chemistry
- Radiochemistry

**CUNY Chemistry**

- Diverse faculty
- 100+ faculty mentors
- 250 papers per year

**Interdisciplinary efforts**

- Molecular biophysics
- Radiochemistry
- Nanotechnology
- Photonics
- Medicinal chemistry
All students admitted to the PhD Program in Chemistry are awarded a CUNY Science Scholarship. This five-year award allows our student to concentrate on their research.

CUNY Science Scholars spend the first year at the CUNY Graduate Center taking courses and learning about the research opportunities available to them. There is no teaching in year one. Students select a mentor and move to their mentors campus by the end of year one.

Years 2-5 are spent at a CUNY campus focused on their dissertation research and perhaps teaching.

Student comments

The chemistry Ph.D program at CUNY has allowed me to pursue my interest. I have greatly benefited from my experience with my mentor, professors and fellow students.

Zhantong Mao (PhD 2015)

CUNY is dense with fantastic faculty, administrators and fellow students that collectively engender a strong likelihood of success.

Douglas Achan (PhD 2015)
CUNY offers students the opportunity to do cutting-edge chemical research in a supportive program that has the feel of a small college while living in one of the world’s most dynamic cities. The PhD Program in Chemistry is unique amongst its peers in that it is a consortium of seven campuses throughout New York City. While all students receive their degree from the CUNY Graduate Center, they do their research at one of the CUNY colleges or the Advanced Science Research Center.

The diverse research opportunities offered by CUNY are augmented by the offerings of New York City. CUNY students participate in events hosted by the New York Academy of Sciences, the New York Local Section of the ACS, and the New York Hall of Science.

Research Centers

The jewel in the crown of CUNY’s multi-billion dollar investment in interdisciplinary scientific research is the CUNY Advanced Science Research Center (http://asrc.cuny.edu). Brimming with state-of-the-art instrumentation and expertise in nanoscience, structural biology, photonics, environmental science, and neuroscience, it is open to all CUNY students and faculty. This collaborative resource augments the resources and instrumentation found on each of the CUNY campuses. In addition, students further their research efforts using the CUNY High Performance Computing Center (http://www.csi.cuny.edu/cunyhpc/).
Dr. Daniel L. Akins
Professor & Chair of Chemistry and Biochemistry
The City College of New York

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.

Publications


"Controllable modification of electronic Structure of Carbon-Supported Core–Shell Cu@Pd Catalysts for formic acid oxidation," Ren, Mingjun; Zhou, Yi; Tao, Feifei; Zou, Zhiqing; Akins, Daniel; Yang, Hui, J. Phys. Chem. C 118, 12669–12675 (2014).


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.
Dr. Mark R. Biscoe

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.
Dr. Zimei Bu is a molecular biophysicist at City College.

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.
Benjamin Burton-Pye specializes in the fundamental chemistry of elements found within the nuclear fuel cycle. His research focuses on manipulating the coordination environment around these metal ions and how that affects chemical, redox and photophysical properties.

Dr. Benjamin P. Burton-Pye
Assistant Professor
Lehman College Department of Chemistry
250 Bedford Park Blvd West
Bronx, NY
Benjamin.Burtonpye@lehman.cuny.edu

2015-Present
Assistant Professor, Lehman College
2013-2015
Radiochemistry Research Scientist, Hunter College
2010-2013
Research Associate, Hunter College
2005-2010
Postdoc, Hunter College
2004-2005
Postdoc, U of Manchester, UK
2001-2004
PhD, U of Manchester, UK

Research Interests

Keywords: Actinides, f-block, Lanthanides, Luminescence, Mentoring relationships, Metal oxides, Nuclear fuel cycle, Radiochemistry, Redox chemistry

His research can be broadly defined as the fundamental chemistry of f-block and group VII metals. There are presently two major research aims associated with this theme:

1. To develop the use of luminescence as a tool to understand the chemical speciation of lanthanides and actinides in the environment, terrestrially and extra-terrestrially.
2. To use soluble metal oxides (polyoxometalates) to fundamentally understand how actinide ions interact with minerals at a molecular level.

He also studies the mentoring relationship and is working towards codifying co- and multi-mentorship models in interdisciplinary research settings.

Publications


Dr. Benjamin P. Burton-Pye
specializes in the fundamental
chemistry of elements found
within the nuclear fuel cycle.
His research focuses on
manipulating the coordination
environment around these
metal ions and how that affects
chemical, redox and photophysical properties.
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


Dr. Maria Contel

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

Publications


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 metallodrugs 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.
Dr. Ruel 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  
94-20 Guy R. Brewer Blvd.  
Jamaica, NY  11451  
rdesamero@york.cuny.edu  
www.cuny.edu/xxxx

<table>
<thead>
<tr>
<th>Year</th>
<th>Position</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010 - current</td>
<td>Associate Professor, York College - CUNY</td>
<td></td>
</tr>
<tr>
<td>2003 - 2010</td>
<td>Assistant Professor, York College - CUNY</td>
<td></td>
</tr>
<tr>
<td>2000 - 2002</td>
<td>Postdoc, Albert Einstein College of Medicine</td>
<td></td>
</tr>
<tr>
<td>1998 - 2000</td>
<td>Postdoc, City College - CUNY</td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>PhD, University of Connecticut</td>
<td></td>
</tr>
</tbody>
</table>

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. Amedee des Georges

The des Georges lab is interested in the molecular mechanisms of cell regulation. We use cryo-electron microscopy to decipher at the atomic level the function of large macromolecular complexes involved in calcium signaling and in the regulation of protein synthesis.

Amedee des Georges
Assistant Professor, ASRC Structural Biology Initiative
City College, Dept. of Chemistry and Biochemistry
CUNY Advanced Science Center, Room 3.316
85 St. Nicholas Terrace
New York NY 10031
Amedee.desGeorges@asrc.cuny.edu
structbio.asrc.cuny.edu

2015- current
Assistant professor, Structural Biology Initiative, CUNY Advanced Science Research Center
Assistant professor, Department of Chemistry and Biochemistry, City College of New York

2008-2015
Postdoc – HHMI / Columbia University – (w/ Dr. Joachim Frank)

2004-2008
PhD – MRC-Laboratory of Molecular Biology, Cambridge, UK – (w/ Drs. Linda Amos & Jan Lowe)

Publications

A. des Georges et al., Structure of the mammalian ribosomal pre-termination complex associated with eRF1• eRF3• GDPNP, Nucleic acids research, 2013, gkt1279.

Research Interests

Keywords:

Cell regulation • Cancer • Heart diseases • Biochemistry • Molecular biology • Structural biology • Cryo-electron microscopy • Image analysis • Modeling • Methods development • Translation initiation • Membrane proteins • Calcium signaling
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.

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.
Dr. Charles Michael Drain

CM Drain is chair of the Department of Chemistry at Hunter College with research in supramolecular materials, photonics, phototherapeutics, and medical photo-diagnostics

Charles Michael Drain
Professor
Hunter College & Rockefeller University
Department of Chemistry
695 Park Avenue
New York NY
cdrain@hunter.cuny.edu
www.hunter.cuny.edu/chemistry/mike/drain

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.
Dr Dorthe M. Eisele

Dorthe Eisele is a Professor of Chemistry at City College and a member of the Graduate Center. Her research interests are in materials research and nanoscience, with a focus on new materials and design principles for solar energy systems.

Department of Chemistry, City College Center for Discovery and Innovation
Advanced Science Research Center
85 Saint Nicolas Terrace, New York, NY 10031
eisele@ccny.cuny.edu
http://eiselegroup.com/
www.cuny.edu/asrc

Current:
Assistant Professor, Chemistry, City College of New York, Principal Investigator, CUNY Graduate Center (Chemistry).

Previously:
Postdoctoral Associate, Massachusetts Institute of Technology, Cambridge, USA
Dr.rer.nat (Ph.D. equivalent), Humboldt University of Berlin, Berlin, Germany

Selected Publications


Eisele, D.M., Knoester, J., Kirstein, S., Rabe, J.P., and Vanden Bout, D.A. “Uniform exciton fluorescence from individual molecular nanotubes immobilized on solid Substrates.”

Research Interests

Keywords: New materials & design principles for solar energy systems; Artificial and biological model systems for light-harvesting (LH) in order to better understand the fundamental processes that govern nature's highly efficient photosynthetic masterpieces; Collective phenomena found in self-assembled nanoscale systems such as supra-molecular assemblies (Frenkel exciton systems), semiconductor nanostructures (Wannier exciton systems), metallic nanostructures (plasmonic systems), and organic/inorganic hybrid systems; Energy and electron transport processes in nanoscale systems; steady-state and time-resolved spectroscopy combined with microscopy techniques.
We have been engaged for quite a few years in the preparation of antimicrobial agents that avoid the problems of resistance associated with antibiotic materials. See http://www.qc.cuny.edu/Academics/Degrees/DMNS/ Pages/ ENGEL_Research_Interests.aspx

1968- current  Current position: Professor of Chemistry and Biochemistry
1966-1968  Postdoc: US Army
1966  PhD: Penn State

Research Interests

Keywords:
Polycationic organic salts, alternative antibacterial, antifungal, and antiviral systems, organophosphorus syntheses and mechanisms, antitumor agents.

Publications


Dr Stephen Philip Fearnley

As a synthetic organic chemist, my research involves development of new methodology for the construction of bioactive natural products: alkaloids, cyclic ether arrays, & C-glycosides.

Stephen Philip Fearnley
Associate Professor
Department of Chemistry
CUNY-York College
94-20 Guy R. Brewer Blvd.
Jamaica NY 11451
sfearnley@qc.cuny.edu
www.york.cuny.edu/portal_college/sfearnley

Publications

S. P. Fearnley* & P. M. Lory, "A concise synthesis of (±)-3-deoxyaltholactone"

S. P. Fearnley* & C. Thongsomkleeb, "Oxazolone Cycloadducts as Heterocyclic Scaffolds for Alkaloid Construction: Synthesis of (±)-2-epi-Pumiliotoxin C”

S. P. Fearnley* & P. M. Lory, "Intramolecular Vinylsilane–Oxocarbenium Condensations – Concise Assembly of cis-Bicyclic Ether Arrays”
*Org. Lett. 2007 9, 3507-3510.

S. P. Fearnley*, "2-(3H)-oxazolone – A Simple Heterocycle with Manifold Potential”
*Current Organic Chemistry; Volume 8, Asymmetric Synthesis" 2004 8, 1289-1338.

S. P. Fearnley* & M. W. Tidwell, "Cyclization of Aryl Silanes with Unexpected Retention of Silicon”

S. P. Fearnley* & E. Market, "Intramolecular Diels-Alder Reactions of N-Substituted Oxazolones”

Research Interests

Keywords: Organic Synthesis • Organic Reactions • Natural Products

• Investigation & use of oxazolone as a useful heterocyclic scaffold for alkaloid synthesis - studies of intramolecular Diels-Alder reactions with oxazolone as dienophile.

• Novel organosilane chemistry for approaches to bioactive ethers - concise assembly of cis-fused bicyclic ether arrays via intramolecular attack of vinylsilanes at tethered oxocarbenium ions. A related silyl-activated Friedel-Krafts process requires an unusual combination of electronic & steric effects.

• Recently completed targets include 2-epi-pumiliotoxin C & deoxyaltholactone. Similar approaches to gephyrotoxin & dysiherbaine are underway.
Publications


Research Interests

Keywords: Ru(II) Diimines, Transition Metal Oxides, Photocatalysis, Nanoporous Silica Matrices

Current research focuses on excited state electron-transfer and acid-base chemistry, photocatalysis of multi-electron, multi-proton conversions such as CO₂ to CH₄ and NOₓ to N₂, synthesis of mixed valent metal oxides in nanoporous silica matrices, absorption and emission properties of tungsten and molybdenum oxides, ground and excited state acid-base properties of tungsten and molybdenum oxides.
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.


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
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  
85 St. Nicholas Terrace  
New York, NY 10031  
Kevin.Gardner@asrc.cuny.edu  
structbio.asrc.cuny.edu • kglab.org

Publications

Y. Guo et al., Coiled-coil coactivators play a structural role mediating interactions in hypoxia inducible factor heterodimerization. *J. Biol. Chem.*, 2015, online now.


Research Interests

Keywords: environmental sensing • protein/protein interactions • ligand binding • allostery • NMR spectroscopy • X-ray diffraction • biochemistry • photosensors • cancer • protein engineering
Dr. Brian R. Gibney

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.

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.


Brian R. Gibney
Associate Professor
Brooklyn College
2900 Bedford Avenue
Brooklyn, NY 11210
bgibney@brooklyn.cuny.edu
http://www.biochemistry.nyc

2018- 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
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.

Dr. Michael Green
Professor
City College of New York
Dept. of Chemistry
160 Convent Ave
New York NY 10031
green@sci.ccny.cuny.edu
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.

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.

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


Name Steve Greenbaum
Position Professor of Physics
Affiliation Hunter College
Address 695 Park Avenue
Address 1220N
New York NY 10065
Email steve.greenbaum@hunter.cuny.edu
www.hunter.cuny.edu/physics/faculty/greenbaum

1983- current  Current position
1981-83  Postdoc, Naval Research Lab
1976-81  PhD, Brown University

Research Interests
Keywords:
Nuclear magnetic resonance, electron paramagnetic resonance, structure of disordered solids battery and fuel cell
Materials characterization

We investigate the structure and function of solid materials at the atomic and molecular level by solid state NMR. Most of these materials have application in renewable energy technologies. I value diversity in the scientific workforce as reflected by my lab group members.

Publications


“Comparative Study of Ether-Based Electrolytes for Application in Lithium–Sulfur Battery”, with Lorenzo Carbone, Mallory Gobet, Jing Peng, Matthew Devany, Bruno Scrosati, and Jusef Hassoun, Applied Materials & Interfaces (ACS), (2015), 7, 13859–13865:

“Interactions between water and 1-butyl-1-methylpyrrolidinium ionic liquids”, with Tatiana A. Fadeeva, Pascale Husson, Jessalyn A. DeVine, Margarida F. Costa Gomes, and Edward W. Castner, Jr., Journal of Chemical Physics, 143, 064503 (2015);


**Publications**


Popović, M, Greenbaum, NL (2014) Role of helical constraints of the EBS1-IBS1 duplex of a group II intron on demarcation of the 5’ splice site. *RNA* 20, 24-35.


Popović, M, Nelson, JD, Schroeder, KT, Greenbaum, NL (2012) Impact of base pair identity 5’ to the spliceosomal branch site adenosine on branch site conformation. *RNA* 18, 2093-2103.


**Research Interests**

**Keywords:** RNA, spliceosome, NMR

We attempt to answer questions about how RNA molecules fold and interact with other RNA, metal ions, and proteins in order to carry out the complex activity of precursor messenger (pre-m)RNA splicing. This process, by which noncoding intron sequences of pre-mRNA molecules are excised and flanking coding exons are ligated together, is an essential step in preparation of mRNA transcripts prior to translation of their message into protein sequences.

Pre-mRNA splicing in eukaryotic cells is performed by the spliceosome, a dynamic nuclear supramolecular assembly that comprises five recyclable small nuclear (sn)RNA molecules and many proteins. Similarities between spliceosomal snRNAs of and functionally analogous regions of Group II introns, which excise themselves even in the absence of proteins, suggests shared evolutionary ancestry and the likelihood that the spliceosomal reaction is also catalyzed by its RNA components. Using a combination of biochemistry, biophysical, and spectroscopy techniques, we characterize the molecular basis of recognition and conformational dynamic leading RNA splicing in the two systems.
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 photooxygen 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 thiathrene, tetrathiocin, trithiole, and pentathiepin anticancer agents.

**Publications**


Dr. Dixie J. Goss

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

Dr. Dixie Goss
Hunter College Chemistry Dept.
695 Park Ave
New York, NY 10065
dgoss@hunter.cuny.edu
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.
Das Sharma S, Kraft JJ, Miller WA, Goss DJ.

Pokeweed antiviral protein, a ribosome inactivating protein: activity, inhibition and prospects.
Domashevskiy AV, Goss DJ.

Rapid kinetics of iron responsive element (IRE) RNA/iron regulatory protein 1 and IRE-RNA/eIF4F complexes respond differently to metal ions.
Khan MA, Ma J, Walden WE, Merrick WC, Theil EC, Goss DJ.

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

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

Wayne W. Harding, PhD
Associate Professor
Hunter College
Chemistry Dept.
695 Park Avenue
New York NY 10065
whardi@hunter.cuny.edu
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. William Hersh is an organic chemist with current research projects on synthesis of chiral oligonucleotide phosphorothioates and helical disulfide polymers. Specialties include NMR, X-ray crystallography, and DFT calculations.


Prof. Hohenstein is a theoretical chemist specializing in the development and implementation of new electronic structure methodology and the application of these methods to problems in excited-state chemistry.

Edward G. Hohenstein
Assistant Professor
City College of New York
Marshak Science Building, Rm. 1032
160 Convent Avenue
New York, NY 10031
ehohenstein@ccny.cuny.edu
http://www.hohenstein-chem.com

2014- current  Assistant Professor, CCNY
2011-2014  Postdoc, Stanford University
2007-2011  PhD, Georgia Institute of Technology

Research Interests

Keywords: Theoretical, Computational, Photochemistry

The accurate treatment of excited electronic states is a uniquely challenging and important problem in electronic structure theory. We are actively developing new methods for treating excited states as well as highly efficient and scalable implementations of these methods that exploit modern advances in computer hardware. We apply these methods to problems in photochemistry. Processes occurring in the condensed phase, such as excited-state proton transfer, are of particular interest. We are also working to apply similar methodology to design light harvesting complexes.

Publications

E.G. Hohenstein, Mechanism for the Enhanced Excited-State Lewis Acidity of Methyl Viologen, J. Am. Chem. Soc., 2016, 10.1021/jacs.5b08177


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.

Publications


H.-H. Zhang, C.-H. Xing, Hu, Q.-S., Controlled Pd(0)/t-Bu₃P-Catalyzed Suzuki Cross-Coupling Polymerization of AB-Type Monomers with PhPd(t-Bu₃P)I or Pd₂(db)₃(t-Bu₃P)/ArI as the Initiator, J. Am. Chem. Soc. 2012, 134, 13156-13159.


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.
Dr. Urs Jans

Dr. Jans is interested in the fate of organic contaminants (e.g., pesticides, flameretardants) in the environment.

Urs Jans
Associate Professor
Department of Chemistry and Biochemistry
City College of New York
160 Convent Avenue
New York NY, 10031
ujans@ccny.cuny.edu
www.ccny.cuny.edu/profiles/urs-jans

1999- current City College of New York
1996-1998 Postdoc, Johns Hopkins University
1992-1996 PhD, ETH Zürich, Switzerland

Publications


Research Interests

Keywords: Environment, emerging contaminants, abiotic transformation, analytical chemistry

My research program at CCNY is addressing questions concerning environmental organic chemistry, with a focus on the mechanisms through which organic contaminants undergo abiotic transformations in natural aquatic environment (freshwater, seawater). We also determine the concentration of organic contaminants in sediments and soils as a tool to understand their accumulation in the environment.
Dr. David Jeruzalmi

Professor of Chemistry
Marshak 1219 • City College of New York • Graduate Center of the City University of New York
160 Convent Avenue
New York, NY 10031
dj@ccny.cuny.edu

Jeruzalmi's 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


Research Interests

The faithful transmission of genetic 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.
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.

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.

Research Interests

Keywords: Soft Matter, organic optoelectronic materials

Publications


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.
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.

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.
Laura Juszczak is a physical chemist with extensive experience in spectroscopic study of tryptophan in proteins. Group expertise allows extension to theoretical study. A new area of interest is development of biologically compatible, Trp-based visible fluorophores (PHOXI).

Laura Juszczak  
Associate Professor  
Brooklyn College  
3119 Ingersoll Hall  
2900 Bedford Ave.  
New York NY  
LJUZAK@brooklyn.cuny.edu

2006- current assistant/associate professor  
1999-2006 research associate, A. Einstein Coll. of Med.  
1992-1999 Postdoc, AECOM  
1992 PhD, New York University

Research Interests

Keywords:

Tryptophan photophysics, fluorescent probe synthesis, fluorescence and UV resonance Raman spectroscopy, molecular dynamics/quantum mechanics calculations

Publications


Dr Akira Kawamura

Natural products chemistry focused on phytobacterial metabolites.

Chemical messages for microbial interactions.

בהמשך מספרו

**Publications**


**Research Interests**

**Keywords:** Natural Products, Phytobacteria, Glycolipids, Immunology

We currently focus on immunomodulatory glycolipids of phytobacteria that were detected in several medicinal plants. In addition to medicinal plants, these lipids exist in many other edible plants. At present little is known about their potential health benefits and risks. This is an important problem because human body is continually exposed to various phytobacterial metabolites through consumption of vegetables, fruits, and herbs. To address this problem, we conduct structural and immunological characterization of phytobacterial glycolipids with immunomodulatory activity.
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.

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.

**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
65-30 Kissena Blvd.
Queen, NY 11367
Sanjai.Kumar@qc.cuny.edu
http://chem.qc.cuny.edu/~skumar/

2007- current
Associate Prof. of Chemistry, Queens College

2002-2007
PostDoc, Albert Einstein College of Medicine

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.

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

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.

Publications

Wickstrom, L. et al. Parameterization of an effective potential for protein-ligand binding from host-guest affinity data. J. Mol. Recognit. (Accepted Journal of Molecular Recognition)


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.

Michal Kruk
Professor
College of Staten Island and Graduate Center
Department of Chemistry, Building 6S-241
2800 Victory Boulevard
Staten Island, NY 10314
Michal.Kruk@csi.cuny.edu
http://www.csi.cuny.edu/faculty/departments/chemistry/kruk_michal.html

2013- current
Professor
2011-2013
Associate Professor
2005-2010
Assistant Professor
2003-2005
Visiting Assistant Professor
1998-2003
Postdoctoral fellow
1994-1998
PhD Student in Chemistry

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.
Lakshman is an organic/bioorganic chemist with interests in: (a) new chemical methodology, (b) nucleoside modification by metal catalysis and uncatalyzed methods, (c) biological agents, (d) novel applications of peptide coupling agents, (e) new aryne reactions.

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

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


Every aspect entails a detailed understanding of chemical process via mechanism studies involving techniques such as molecular spectroscopy, multinuclear NMR, and isotopic labeling.
Dr Themis Lazaridis

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.

Publications


1998- City College
1992-1998 Postdoc, Harvard University
1987-1992 PhD, University of Delaware
Dr. Jianbo Liu

Associate Professor
Queens College and the Graduate Center of CUNY
Department of Chemistry and Biochemistry
65-30 Kissena Blvd.
Queens, NY 11367
Jianbo.liu@qc.cuny.edu
http://chem.qc.cuny.edu/~jliu/Liu_page/Liu_main.htm

2013- current  Associate Professor, Queens College
2016-2013  Assistant Professor, Queens College
1999-2000  Postdoc, Lawrence Berkeley Lab
1997  Ph.D. (Physical Chemistry)

Research Interests

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

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. Supported by extensive computational efforts including statistical modeling and methods.

Publications


Gustavo Lopez is a Lehman College computational and theoretical chemist. He specializes in developing and applying computational methods to describe system in condensed phase. Some of the system considered are quantum fluids, proton wires, molecular hydrogen trapped in fullerenes, and biomolecular systems.

Publications (select)


Research Interests

**Keywords:** computational chemistry, path-integral Monte Carlo, molecular hydrogen, fluids, proton wires

Professor Gustavo Lopez is interested in developing computational techniques to describe various systems in computational phase. Specifically, quantum and classical Monte Carlo techniques are applied to describe nanostructured systems, molecular hydrogen adsorbed on surface or trapped in fullerenes, and quantum liquids. Additionally, ab-initio techniques are used to describe molecular wires formed in helical peptides, metal oxides, and semiconductors.
The Loverde laboratory utilizes all-atomic (AA) and coarse-grained molecular dynamics (CG-MD) simulations, in combination with advanced sampling techniques, to investigate soft and biological materials.

**Research Interests**

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

---

**Publications**


Dr. Alan Lyons

Dr. 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.

Publications


Research Interests

Keywords: superhydrophobicity, wetting, polymer pen printing, photocatalysis, thermal interfaces

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: anti-reflective self-cleaning optically clear coatings to increase the energy efficiency of photovoltaic panels and the isolation and study of single cells within nano/picoliter gel droplet arrays.
Dr. Prabodhika Mallikaratchy

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

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.

Publications


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.
Dr. Hiroshi Matsui

Matsui is a Professor at Hunter College and Weill Medical College of Cornell University. My research areas are Cancer diagnostics/therapeutics, Bionanotechnology, Lab-On-a-Chip, and Nanoparticle Synthesis for Medical Applications.

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).

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 nanoprobes, 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
Professor
Hunter College
Chemistry Department
695 Park Avenue
New York NY 10065
dmootoo@hunter.cuny.edu
http://www.hunter.cuny.edu/chemistry/faculty/Randy/
Randy

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
Assistant Professor
Brooklyn College
2900 Bedford Avenue
Brooklyn, NY
rpmurelli@brooklyn.cuny.edu
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


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

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.
**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.  
Staten Island, NY 10314  
sebastien.poget@csi.cuny.edu  
www.csi.cuny.edu/faculty/POGET_SEBASTIEN.html

2009- current  Assistant Professor, College of Staten Island, CUNY
2003-2009  Postdoc, Albert Einstein College of Medicine, NY
2001-2003  Postdoc, Rockefeller University, NY
1997-2001  PhD, University of Cambridge, UK

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.
Dr. Adam A. Profit

Protein-ligand interactions is the unifying theme of my research interests. In particular, the design, synthesis and application of biologically relevant probe molecules to study and elucidate protein-protein and protein-ligand interactions involved in amyloid diseases and cancer.

Adam A. Profit, Ph.D.
Associate Professor
York College
94-20 Guy R. Brewer Blvd
Jamaica, NY 11451
Email: aprofit@york.cuny.edu
www.york.cuny.edu/portal_college/aprofit

2014- current  Associate Professor of Chemistry
2004-2014  Assistant Professor of Chemistry
2000-2004  Merck Research Laboratories
1997-2000  Postdoc - Albert Einstein College of Medicine
1997  PhD - Stony Brook University

Publications


Research Interests

**Keywords:** Amyloid, protein kinases, peptides, peptoids, enzymology, solid phase synthesis

The abnormal formation of protein aggregates, or amyloid deposits, is the hallmark of Alzheimer’s disease as well as type 2 diabetes. My laboratory is investigating the molecular interactions that occur between key proteins that contribute to the formation of amyloid in these diseases. Through a more detailed understanding of how these proteins self-assemble to form aggregates, we hope to design and develop small molecule and peptide mimetic inhibitors which may serve as potential therapeutic agents.

We are also developing compounds that inhibit the activity of key enzymes (kinases) which can cause tissues to grow out of control and develop into tumors. To accomplish this we are synthesizing molecules that exploit the unique molecular recognition motifs found in these enzymes to more effectively deliver inhibitory species to the active site.
Krishnaswami Raja, Ph.D.
Associate Professor
College of Staten Island
Department of Chemistry
2800 Victory Boulevard
Staten Island, New York 10314
Krishnaswami.Raja@cuny.edu
http://www.csi.cuny.edu/faculty/RAJA_KRISHNASWAMI.html

2012- current  Associate Professor
2005-2012  Assistant Professor, College of Staten Island
2000-2004  Skaggs Post Doctoral Fellow TSRI
1999  Indian Institute of Science

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. Varattur Reddy

Our group research focuses on the following areas: Synthesis of organic and organometallic compounds as anticancer and anti-Alzheimer’s disease agents, and catalysis.

Name: Varattur D. Reddy  
Position: Professor  
Affiliation: Kingsborough Community College  
Address: 2001 Oriental Blvd  
Manhattan Beach, Brooklyn, NY 11235  
vreddy@kbcc.cuny.edu and vreddy@gc.cuny.edu

2001- current  
Kingsborough Community College-CUNY

1993-2001  
Schering Plough Pharmaceutical Company currently Merck and American Health Foundation

1990-1993  
Hunter College and Queens College

1990  
Ph.D. Indian Institute of Technology, Mumbai

Research Interests

Synthesis of organic and organometallic compounds as anticancer and anti-Alzheimer's disease agents. Organic synthesis involves total synthesis of natural and unnatural products and modified carbohydrates. Organometallic chemistry involves synthesis of novel organometallic catalysts, efficient methodologies for the synthesis of biologically active molecules, bioorganometallics, and drug delivery systems. Research facilities at Kingsborough are 400 MHz NMR Facility, IR, GC, and HPLC.

Publications

Kevin Ryan, Ph.D.
Associate Professor, Biochemistry Division
Department of Chemistry and Biochemistry
The City College of New York
MR-1337, 160 Convent Ave.
New York NY
kr107@sci.ccny.cuny.edu
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

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);


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.
Chwen-Yang Shew

Professor
Department of Chemistry
College of Staten Island
2800 Victory Boulevard
Staten Island, NY 10314
chwenyang.shew@cuny.edu

Publications


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.
Dr. Yolanda Small

Dr. Small's research is at the interface of biology, chemistry and condensed matter physics where she applies computational techniques to address questions ranging from reactions in enzymes to reactions at the aqueous/semiconductor interface.

Yolanda A. Small
Assistant Professor
Department of Chemistry
CUNY York College and The Graduate Center
94 - 20 Guy R. Brewer Blvd,
Jamaica, NY 11451-0001
ysmall@york.cuny.edu
www.york.cuny.edu

2010- current  Assistant Professor – York College CUNY
2007-2010  Postdoc – Brookhaven National Lab

Publications


Research Interests

Keywords:

Two main computational methods are applied to answer questions about the molecular interactions of catalysts and semiconductors: (1) Quantum Mechanical/Molecular Mechanical (QM/MM) modeling and simulations and (2) electronic structure methods using Gaussian-based Density Functional Theory (DFT).
Aaron is a natural product chemist with interests in renewable fuels and valorization of biomass. Current projects include lignin depolymerization and synthetic conversion to tetraalkylammonium ionic liquids. Other active areas of research include glycerol chemistry and structural analysis of natural products.

Keywords:
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

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

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


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.
Dr. Ming Tang

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.

Ming Tang, PhD
Assistant Professor
Department of Chemistry
2800 Victory Blvd
College of Staten Island
Staten Island, NY 10314
Ming.tang@csi.cuny.edu
http://www.csi.cuny.edu/faculty/departments/chemistry/TANG_MING.html

2013- current
Assistant Prof. of Chemistry, College of Staten Island, CUNY

Publications


Research Interests

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

Publications

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


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.
Dr. Mariana Torrente

Dr. Torrente is interested in the molecular mechanisms underlying neurodegenerative and psychiatric disease.

Mariana Torrente
Assistant Professor
Department of Chemistry
2900 Bedford Avenue
Ingersoll Hall Extension 343/345
Brooklyn NY
mariana.torrente@brooklyn.cuny.edu

Publications


Research Interests

Keywords:
We seek to understand the role of epigenetic mechanisms and protein folding in the etiology of neurodegenerative and neuropsychiatric disease. The central hypothesis of our research is that posttranslational modification (PTM) of histones and protein misfolding play a key role in linking genetic predisposition to cellular toxicity in neurodegenerative disease. Epigenetics and protein aggregation may reveal alternative mechanisms behind the occurrence of disease, serving as the missing link between genetic and environmental factors.
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.

Publications


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.
Dr. Michele Vittadello

Dr. Vittadello’s research is focused on the areas of nanotechnology and materials science, inorganic and physical chemistry.

Associate Professor of Chemistry and Env. Science
Medgar Evers College of CUNY
1638 Bedford Avenue
Brooklyn NY 11225
mvittadello@mec.cuny.edu
www.gc.cuny.edu

2015- current  Associate Professor
2008-2015  Assistant Professor
2005-2008  Postdoc (Rutgers University)
2003-2005  Postdoc (Hunter College)
2000-2003  PhD (University of Padua)

Publications


Research Interests

Keywords: Energy Nanotechnology and Materials, Biohybrid Photosynthetic/Mitochondrial Systems, Polymer Electrolytes, Lithium/Magnesium Batteries, Supercapacitors, Fuel Cells, Photovoltaic Devices, Bionanotechnology, Environmental Elemental Analysis.

Investigation of fundamental physical-chemical properties of nanomaterials, materials and biomaterials with potential applications in the field of energy storage/generation and biotechnology; Design and assembly of new devices; High quality publications and patents.
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 conductivity switch, 4-stage memory and room temperature magnetoelectric coupling.

Nan-Loh Yang
Professor of Chemistry
College of Staten Island
2800 Victory Boulevard
Staten Island, NY 10341
nanloh.yang-cepm@csi.cuny.edu
www.chem.csi.cuny.edu

Current
1969-1970 Postdoc, Mount Sinai School of Medicine
1969 PhD Polymer Chemistry NYU-Poly

Research Interests

Keywords: Nanoelectroncis, Superbugs killers, Photopolymers Novel Polyacetals, 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.

Publications


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.
Dr. Guoqi Zhang

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.

Publications


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.
Dr. Shengping Zheng

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

Shengping Zheng
Assistant Professor
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 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.