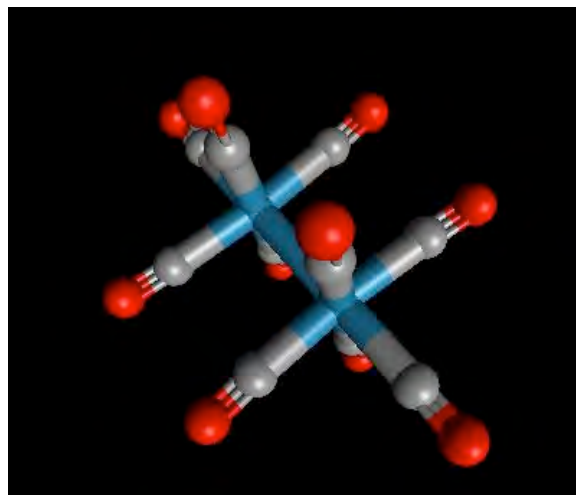




Inorganic Chemistry Sub-discipline



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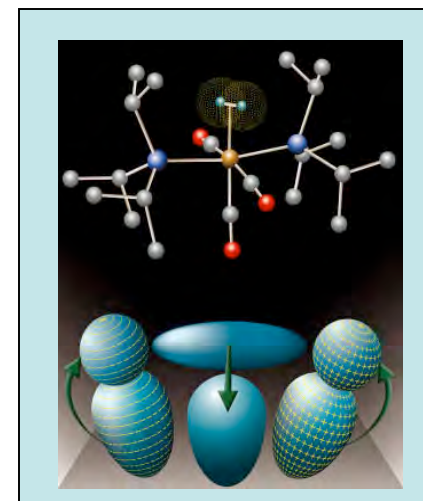
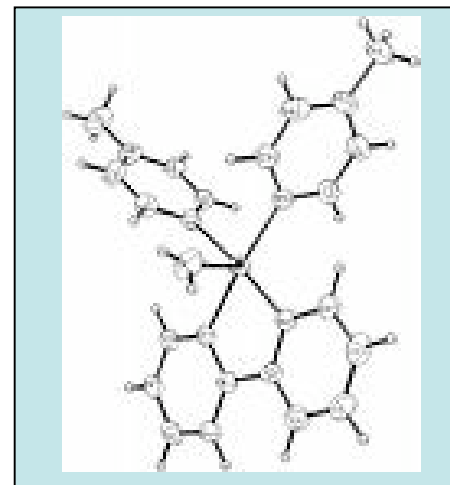
Prof. Roberto A. Sánchez-Delgado
Brooklyn College

Email: Rsdelgado@brooklyn.cuny.edu

Phone: (718) 951 5000 Ext. 2827

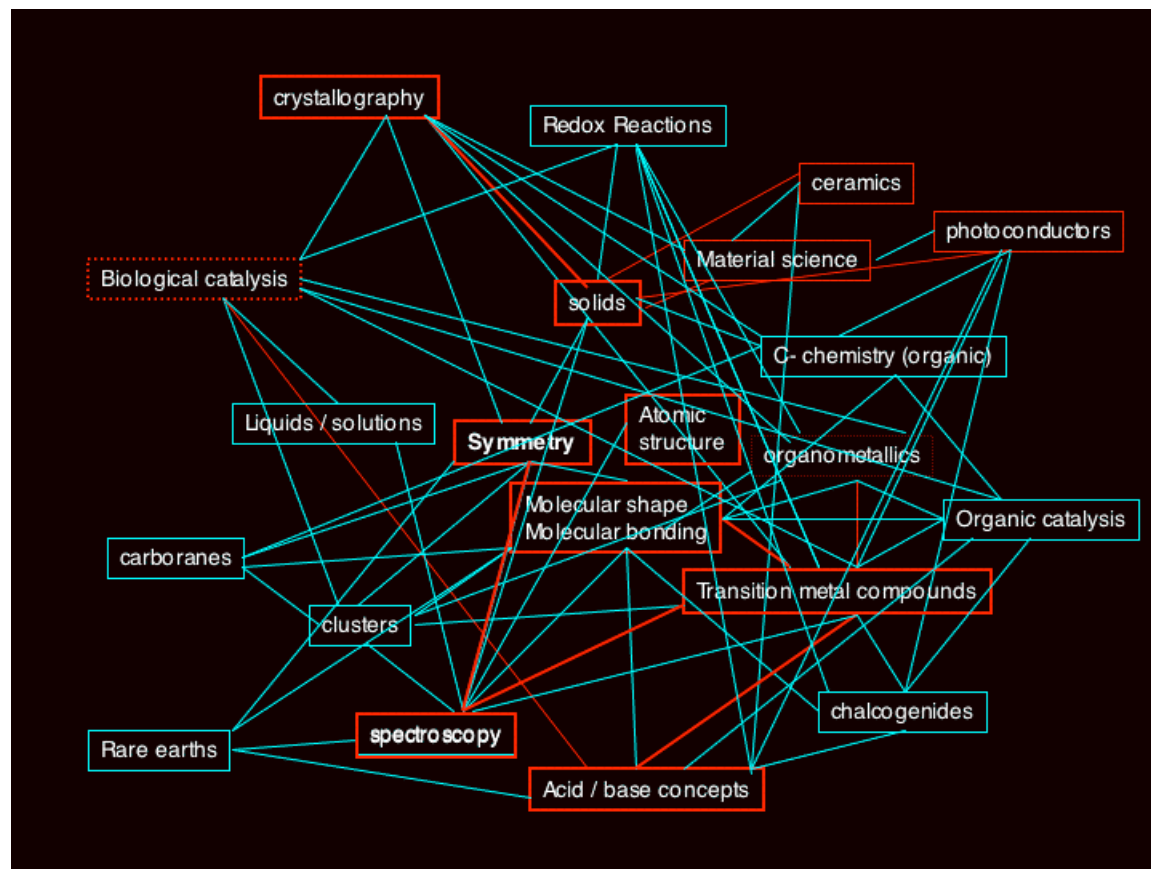
Inorganic Sub-discipline Faculty Members

- **Brooklyn College**
 1. Maria Contel
 2. Brian Gibney
 3. Richard Maglizzo
 4. Roberto Sanchez-Delgado
- **City College**
 5. Glen Kowach
 6. Maria Tamargo
- **Hunter College**
 7. Mike Drain
 8. Lynn Francesconi
- **Queens College**
 9. Harry Gafney
 10. Seogjoo Jang
 11. Tom Streckas
- **Others**
 12. Chandrika Kulatilleke, Baruch College



Current Students, Inorganic Chemistry Sub-discipline

- Brooklyn College
 1. Lei Chen
 2. Minfeng Fang
 3. Abdelahad Khajo
 4. Fangwei Liu
- Hunter College
 5. Steward Hung
 6. Reena Rahi
- Queens College
 7. Jim Dimitrakopoulos
 8. Elena Ferloni
 9. Marta Kowalczyk
 10. Anthoni Perri



Inorganic Chemistry Sub-discipline

Required Courses

Advanced Inorganic Chemistry (71000, 3cr)
Advanced Organic Chemistry I (75000, 3cr)
Introduction to Quantum Chemistry (76000, 3cr)
Basic Laboratory Techniques (79001, 4cr)
Project Teach (60100, 1cr)
Advanced Seminar (80501 1cr, every semester)

Other 700 Courses you may wish to take

Spectroscopy (76100, 3cr)
Chemical and Statistical Thermodynamics and Kinetics (75000, 4cr)
Introduction to Nanotechnology (78500, 4cr)
Quantum Organic Chemistry (72200, 3cr)

Special Topics in Inorganic Chemistry (81900)

Organometallic Chemistry and Catalysis
Bio-inorganic Chemistry
Radiochemistry
Surface Chemistry

86919 X ray structure analysis
86921 Computational Chemistry

Inorganic Chemistry Sub-discipline
Second level examination

Part 1

Starting in the Fall of second year, four exams:

- Administered by individual faculty (one per month)
 - Usually oral, based on assigned literature
 - Brief written report required

Part 2

Spring of second year.

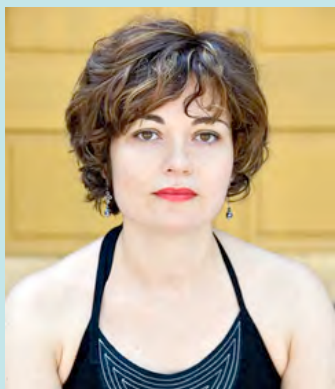
Original Research Proposal NOT related to topic of Thesis
(Written report ~10 pages), containing:

- Object, significance and specific aims of the project
- Background (summary of previous knowledge on the topic)
- Research strategy and experimental or computational methods
- Bibliography

Oral defense (~20 min) followed by discussion with examination committee
(Sub-discipline Chair + 2 other faculty members)

Inorganic Chemistry Sub-Discipline Research Possibilities

Brooklyn College



Prof. Maria Contel

Homogeneous Catalysis, Bioinorganic, Green Chemistry
New recyclable catalysts for reactions with potential industrial applications
Use of organogold compounds as novel catalysts and as anticancer agents.

Our laboratory is interested in understanding how proteins fold, incorporate metal ions and perform catalysis.

Our research approach uses thermodynamic analysis of metal-peptide and metal-protein interactions to understand fundamental metalloprotein structure-function relationships.

We are studying the role of Zn(II) in protein folding and the role of porphyrin structure on heme biochemistry



Prof. Brian Gibney

Inorganic Chemistry Sub-Discipline Research Possibilities Brooklyn College



Prof. Rick Magliozzo

Spectroscopic investigations of the structure and function of two bacterial enzymes: catalase-peroxidase from *Mycobacteria tuberculosis* and *E. coli* pyruvate formate-lyase.

Study of the origin of resistance to the antibiotic isoniazid in *M. tuberculosis*
EPR, optical and resonance Raman spectroscopy, ITC, stopped flow methods

Development of new catalysts derived from transition metal complexes or nanoparticles for reactions related to the production of cleaner fuels.
High pressure reactors, GC/MS

Discovery of novel metal-based drugs against malaria and cancer.
Metal heme and metal-DNA interactions
NMR, FTIR and UV-vis spectroscopy



Prof. Roberto Sánchez-Delgado

Inorganic Chemistry Sub-Discipline Research Possibilities City College



Prof. Glen Kowach

Synthesis of novel materials, which includes the deposition of crystalline and amorphous thin films (zinc oxide), growth of single crystals (zirconium tungstate and transition metal phosphides), fabrication of nanocomposite glasses, and exploration of electronic, magnetic and optical materials.

X-ray diffraction, elemental analysis, ellipsometry/reflectometry, electrical and magnetic properties.

Molecular Beam Epitaxy (MBE) growth and characterization of semiconductor materials for photonic and electronic applications. III-V and II-VI semiconductor materials and their nanostructures. Growth and properties of a new family of wide bandgap II-VI semiconductors, ZnCdMgSe.



Prof. Maria Tamargo

Inorganic Chemistry Sub-Discipline Research Possibilities Hunter College



Prof. Mike Drain

Our research falls broadly into several areas interconnected by the themes of self-assembly and energy transduction: Self-Assembly of Supramolecular Photonics (organic, inorganic and materials chemistry), Combinatorial Chemistry & the Molecular recognition of biomolecules (organic and biochemistry), Membrane Electrostatics & Conduction (theoretical and biophysical chemistry) Porphyrin Photophysics(physical chemistry).

The Francesconi lab investigates the chemistry of technetium (Tc) and the lanthanides. As Tc-99m, technetium is the most widely used isotope in the clinic for diagnosis of disease.

The Francesconi lab, in collaboration with Diatide and Schering, has identified the structures of two recent targeted Tc-99m radiopharmaceuticals, AcuTect™ and NeoTect™ now in the clinic for imaging Deep Vein Thrombosis and lung tumors. The lab is transitioning to radiotherapy applications employing Re-188), as well as radiolanthanides.



Prof. Lynn Francesconi

Inorganic Chemistry Sub-Discipline Research Possibilities Queens College



Prof. Harry Gafney

Photochemistry of inorganic complexes in solution and on porous glasses, laser flash photolysis, photoredox chemistry, excited-state acid-base chemistry, photoactivated hybrid catalysis, assembly of multi-component sites, synthesis and characterization of sol-gel derived glasses and laser active glasses, photodeposition of integrated optics, optical and magnetic properties of metal and metal oxide aggregates in optical materials.

My present research focuses on theoretical understanding of energy and charge flow dynamics in various condensed phase systems ranging from liquids to biological systems. A particular attention is paid to important quantum effects such as quantum coherence and tunneling. The research integrates three major components of theoretical chemistry -developments of new theories, large scale computation, -and modeling of complex spectroscopic data.



Prof. Seogjoo (Suggy) Jang