

## Faculty Participants

- Daniel L. Akins, Chemistry, CCNY
- Adam Braunschweig, Chemistry, CUNY-ASRC
- Ubaldo M. Cordova, Chem. Eng., UPRM
- Alexander Couzis, Chem. Eng., CCNY
- Dorthie Eisele, Chemistry, CCNY
- Lia Krusin-Elbaum, Physics, CCNY
- Swapan K. Gayen, Physics, CCNY
- Pouyan Ghaemi, Physics, CCNY
- Alexander Khanikaev, Elec. Eng., CCNY
- Ilona Kretzschmar, Chem. Eng., CCNY
- John R. Lombardi, Chemistry, CCNY
- Gustavo Lopez, Chemistry, LC
- Donna McGregor, Chemistry, LC
- Vinod Menon, Physics, CCNY
- Carlos Meriles, Physics, CCNY
- Stephen O'Brien, Chemistry, CCNY
- Kyungwha Park, Physics, VT
- Mark Shattuck, Physics, CCNY
- Aidong Shen, Elec. Eng., CCNY
- Maria C. Tamargo, Chemistry, CCNY
- Madeline Torres Lugo, Chem. Eng., UPRM
- Raymond Tu, Chem. Eng., CCNY
- Rein Ulijn, Chemistry, CUNY-ASRC

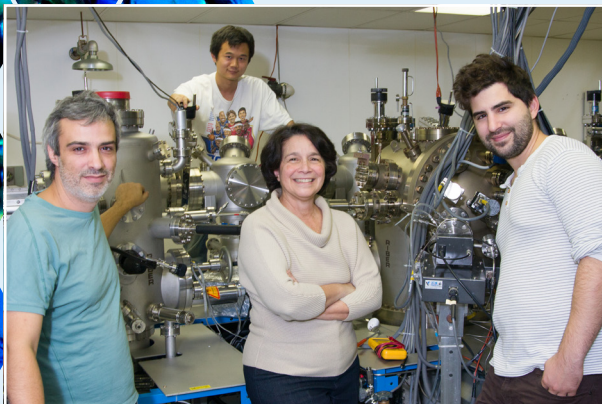
## Leadership

MARIA C. TAMARGO is the Director and Principal Investigator of the Center. She is joined by co-principal investigators Swapan Gayen, Lia Krusin-Elbaum, Ilona Kretzschmar and Gustavo Lopez.

## The City College of New York

The City College of New York (CCNY), the oldest college of the City University of New York (CUNY), is a comprehensive teaching, research and service institution dedicated to access and excellence in undergraduate and graduate education.

CCNY and the CUNY Graduate Center jointly award Ph.D. degrees in biology, biochemistry, chemistry and physics. The Grove School of Engineering at CCNY also grants the Ph.D. in five engineering disciplines. CCNY is the alma mater of nine Nobel Laureates in physics, chemistry and economics.



Maria C. Tamargo, Director

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160 Convent Ave., New York, NY 10031



IDEALS was established with an award of \$5 million over five years from the National Science Foundation.



Center for Interface Design and Engineered Assembly of Low-dimensional Systems

## Graduate Research Fellowships

IDEALS CREST • City College of New York  
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## THE CREST CENTER FOR INTERFACE DESIGN AND ENGINEERED ASSEMBLY OF LOW DIMENSIONAL SYSTEMS (IDEALS)

addresses the national need for “accelerating the pace of discovery and deployment of advanced material systems” as stated in the Materials Genome Initiative ([www.whitehouse.gov/mgi](http://www.whitehouse.gov/mgi)).



A diverse interdisciplinary team of researchers with complementary interests has come together to discover and design materials with new and enhanced functionalities that culminate from the control of the salient properties of surfaces, interfaces and defects in self-assembled nanomaterials; and to further technology, energy and health applications. IDEALS scientists and engineers at CCNY with partners at Lehman College, the CUNY Advanced Science Research Center, the University of Puerto Rico at Mayaguez, and Virginia Tech employ experimental, analytical and numerical modelling tools to design and discover complex novel materials, investigate new physical phenomena, and integrate education and research to train the leaders of tomorrow.

## RESEARCH AREAS

### Low-Dimensional Functional Materials and Nano-Heterostructures

- Tunable topological heterostructures for thermoelectric applications
- Heterovalent II-VI/III-V semiconductor structures for photonic devices
- Novel photonic applications: ZnO-based emitters; plasmonics in topological surfaces of  $\text{Bi}_2\text{Se}_3$

### Bio-inspired Re-configurable Materials

- Transient and reconfigurable nanostructures that respond to external stimuli
- Energy and electron transfer in hybrid nanostructures for light harvesting
- Re-configurable structures for cancer diagnosis and therapy

### Novel Materials Probes and Design Formalism

- Probes and Characterization: surface enhanced Raman scattering; Fourier space imaging and near field microscopy; time-resolved scanning tunneling microscopy
- Analytical approaches and numerical modelling: quantum field theory, density functional theory, molecular dynamics, Monte Carlo algorithms
- “Spin complexes” for sensing and quantum information processing

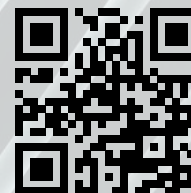
## GRADUATE RESEARCH FELLOWSHIPS



- \$34,000 annual stipend
- Full tuition waiver
- Comprehensive health insurance
- Interdisciplinary research
- Global research collaborations

## ELIGIBILITY

- Must be U.S. citizens or permanent residents
- Must be admitted to the CUNY Ph.D. program in chemistry, physics or engineering
- African Americans, Latinos, Native Americans and women are strongly encouraged to apply



## CONTACT

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