

ADVANCED SCIENCE RESEARCH CENTER



NANOSCIENCE INITIATIVE

asrc.gc.cuny.edu/nanoscience

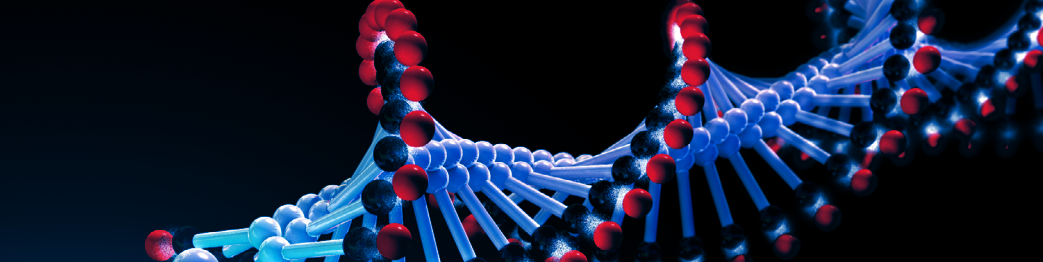
Mission

To serve as a world-leading center in the development of nanotechnology solutions that are inspired by and integrated with living systems. The initiative achieves this distinction through its focus on a “systems” approach to nanoscience designed through principles found in the living world to ultimately benefit society—in terms of improved industrial processes, environmental remediation, and human health.



Initiative Overview

The Nanoscience Initiative operates over two floors in the ASRC building, first and ground floors, and houses state-of-the-art facilities, including experimental labs for measurement, synthesis, and nanofabrication, and a 5,000-square-foot clean room that is among the best equipped on the East Coast.



Initiative Overview (cont.)

The Nanoscience Initiative team, which is led by Professor Rein V. Ulijn, includes resident scientists, affiliated faculty from across CUNY, and a dynamic population of visiting scientists from the New York area and around the globe. The initiative has a distinct research vision in nanoscience, focusing on the study and application of dynamic nanoscale systems, from fundamental understanding to applications ranging from biomedicine to food science to green energy.

Laboratories

Ulijn Laboratory

Professor Rein V. Ulijn's lab is researching how the building blocks and molecular rules of life can be repurposed to develop bioinspired nanotechnology. The research team is motivated by the notion that the sophisticated structures, devices, and machines of the living world are produced from just a few dozen simple building blocks that collectively represent an enormous interaction and functionality space. The Ulijn group is developing experimental and computational methods to search and navigate this space, resulting in design paradigms to produce new materials, sensors, actuators, emulsifiers, and catalysts. Applications are sought in environmental technology, sustainable bioplastics, and biomedical nanotechnology.

Chen Laboratory

Professor Xi Chen and his laboratory team focus on identifying the fundamental mechanisms behind materials' water-responsive behaviors and developing high-efficiency water-responsive materials for actuators and their newly developed evaporation energy-harvesting technique. Their work on water-responsive biomaterials and evaporation-driven engines could provide an additional energy source that expands knowledge of the science of energy production and offers a path toward addressing society's power needs by working alongside nature.

Braunschweig Laboratory

Professor Adam Braunschweig and his group leverage organic chemistry, supramolecular chemistry, and materials science to address pressing medical, environmental, and electronic challenges. Specific projects involve the development of organic photovoltaics, the preparation of antiviral compounds, and 4D printing. Their research explores the interface of organic chemistry with biology and materials science to find new solutions to energy, health, and environmental challenges. Emphasis is placed on the rational design of target molecules and a fundamental understanding of their assembly and function.