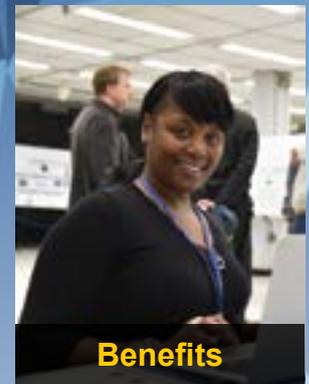
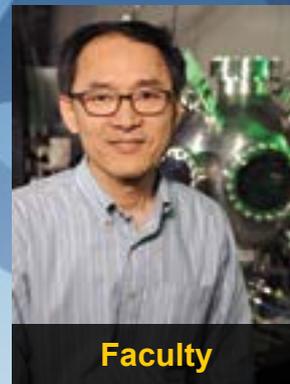


## The U.S. Naval Research Laboratory

provides the advanced scientific capabilities required to bolster our country's position of global naval leadership. Here, in an environment where the nation's best scientists and engineers are inspired to pursue their passion, everyone is focused on research that yields immediate and long-range applications in the defense of the United States.

Advancing your career **further than you can imagine.**<sup>®</sup>



NRL offers its civilian employees a challenging and exciting career in the federal government with flexible work schedules, competitive salaries, and world-class research facilities with state-of-the-art equipment. Apply your talents in a creative, hands-on environment, with opportunities for educational and career development. Work with world-renowned scientists and engineers and forge your own path of success.

# OPPORTUNITIES

	Radar	Information Technology	Optical Sciences	Tactical Electronic Warfare	Chemistry	Materials Science and Technology	Computational Physics & Fluid Dynamics	Plasma Physics	Electronics Science and Technology	Biomolecular Science and Engineering	Acoustics	Remote Sensing	Ocean Sciences	Marine Meteorology	Space Science	Space Systems Development	Spacecraft Engineering
Aerospace Engineer			•			•								•	•	•	
Astrophysicist											•			•			
Biologist				•	•				•			•					
Chemical Engineer			•	•	•	•		•	•								
Chemist			•	•	•	•		•	•	•		•					
Civil Engineer											•	•					
Computer Engineer		•	•	•								•					•
Computer Scientist	•	•		•		•		•		•		•	•	•	•	•	•
Electrical Engineer			•		•	•		•	•		•	•			•	•	
Electronics Engineer	•	•	•	•				•	•		•	•			•	•	
Engineering Res. Psychologist		•															
Environmental Engineer												•					
Geologist											•	•					
Geophysicist											•						
Materials Research Engineer			•		•	•		•	•			•					
Mathematician	•	•		•		•	•			•	•			•	•	•	
Mechanical Engineer		•	•	•	•	•	•			•	•	•		•	•	•	
Metallurgist					•												
Meteorologist											•	•	•				
Microbiologist				•	•				•			•					
Oceanographer											•	•					
Physical Scientist		•		•		•					•						
Physicist	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

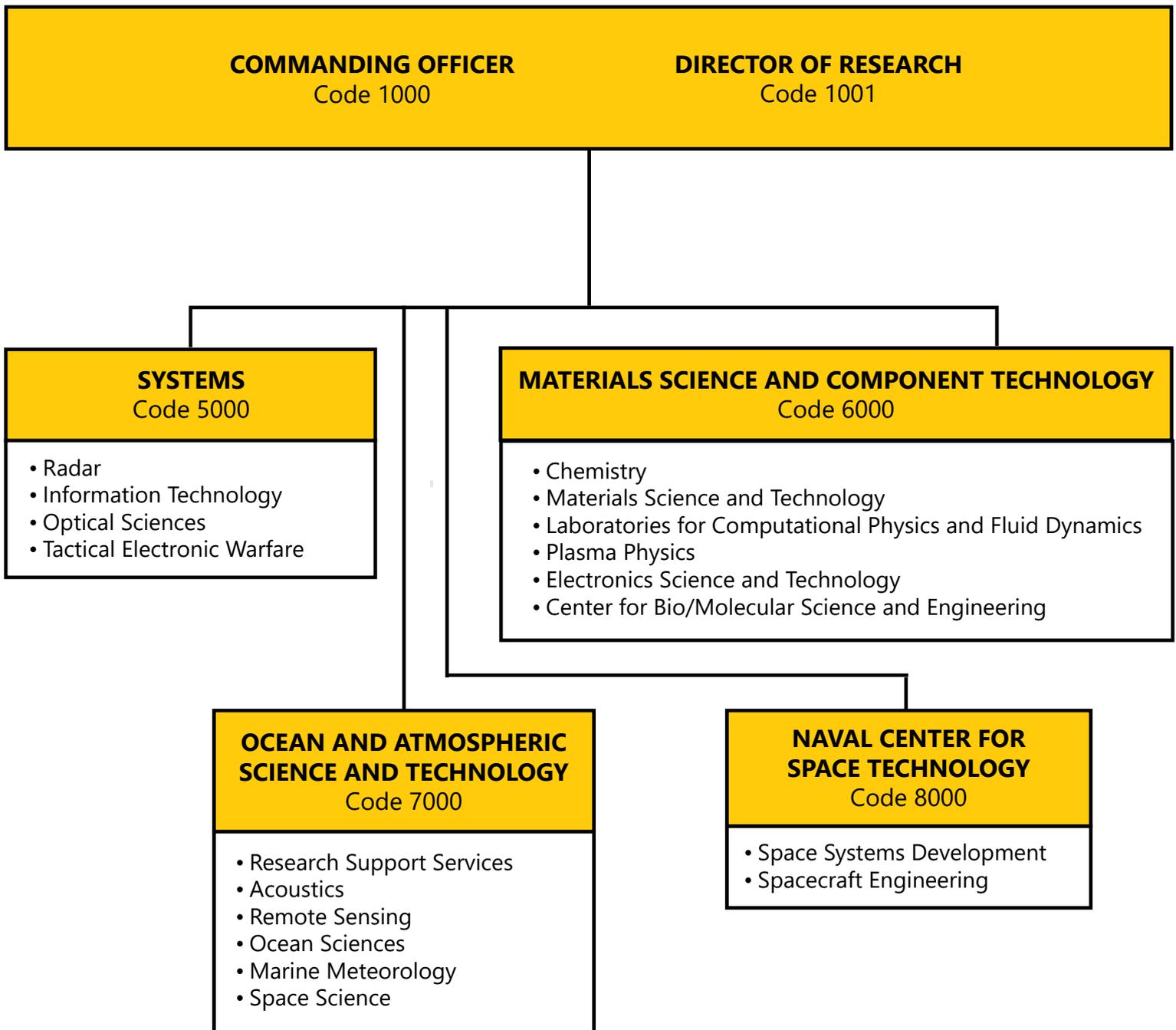
## NRL Locations

**Main Campus:** U.S. Naval Research Laboratory, Washington, DC

**Field Sites:** U.S. Naval Research Laboratory, John C. Stennis Space Center, MS  
 U.S. Naval Research Laboratory, Marine Meteorology Division, Monterey, CA  
 Scientific Development Squadron ONE (VXS-1), Naval Air Station Patuxent River, MD  
 Chesapeake Bay Detachment (CBD), Chesapeake Beach, MD

**Test Sites:** Midway Research Center, Stafford, VA  
 Free Space Antenna Range, Pomonkey, MD  
 Blossom Point Tracking Facility, Blossom Point, MD  
 Marine Corrosion Facility, Fleming Key, Naval Air Station Key West, FL  
 National Synchrotron Light Source, Brookhaven National Laboratory, Upton, NY

# NRL Research Functional Organization



**NRL IS AN EQUAL OPPORTUNITY EMPLOYER**

# NRL Research Divisions/Departments/Centers

## **INSTITUTE FOR NANOSCIENCE** – Code 1100 – [nanoinfo@nrl.navy.mil](mailto:nanoinfo@nrl.navy.mil)

The Institute for Nanoscience has two primary responsibilities: to administer an interdisciplinary research program in nanoscience and to provide NRL scientists with high-quality laboratory space and state-of-the-art nanofabrication facilities.

The mission of the research program is to conduct highly innovative research at the intersections of the fields of materials, electronics, and biology in the nanometer size domain. The Institute exploits the broad multidisciplinary character of NRL to bring together scientists and engineers with disparate training and backgrounds to tackle common goals at the intersection of their respective fields at this length scale.

The Institute operates a nanoscience research building containing nanofabrication facilities and environmentally controlled measurement laboratories. The central core of the building, a 5000 ft<sup>2</sup> Class 100 clean room, has been outfitted with the newest tools to permit nanofabrication, measurement, and testing of devices. The building also contains 12 controlled-environment laboratories available to NRL researchers whose experiments are sufficiently demanding to require this space. They provide shielding from electromagnetic interference, and very low floor vibration and acoustic levels. Eight laboratories control the temperature to within  $\pm 0.5$  °C and four to within  $\pm 0.1$  °C.



Institute for Nanoscience conducting interdisciplinary research of materials, electronics, and biology in the nanometer size domain.

## **LABORATORY FOR AUTONOMOUS SYSTEMS RESEARCH** – Code 1700 – [lasr@nrl.navy.mil](mailto:lasr@nrl.navy.mil)

The Laboratory for Autonomous Systems Research provides specialized facilities to support interdisciplinary research in autonomous systems, including software for intelligent autonomy, sensor systems, power and energy systems, human-systems interaction, networking and communications, and platforms and mobility. The Laboratory provides simulated environments (littoral, desert, tropical) and instrumented reconfigurable high bay spaces to support integration of science and technology components into research prototype systems. The objective of the laboratory is to enable Naval and Department of Defense scientific leadership in this complex, emerging area and to identify opportunities for advances in future defense technology.

The Reconfigurable Prototyping High Bay allows real-time, accurate tracking of many entities (vehicles and humans) for experimental ground truth. Small UAVs and ground vehicles can simultaneously operate within the large high bay, which is viewable from four adjacent Human-System Interaction labs. The Tropical High Bay emulates a rainforest with appropriate terrain and plants, and includes flowing water features. An outdoor Highland Forest provides an additional forest environment with water and terrain features. The Desert High Bay provides a simulated desert environment featuring a sand pit, natural rock walls, and appropriate lighting and wind. The Littoral High Bay provides a simulated coastal environment featuring sediment tanks, large pool with a sloping floor, and small flow tanks. In addition to the environmental high bays, the facility also has a Power and Energy Laboratory, a Sensor Laboratory, and a mechanical and electrical shop.

The facility is open to use by all NRL scientists contributing to the science and technology of autonomous systems.



This facility on the Washington, D.C., campus is a nerve center for basic research in autonomous systems for the Navy and Marine Corps.

## **RADAR DIVISION** – Code 5300 – [radarinfo@nrl.navy.mil](mailto:radarinfo@nrl.navy.mil)

The Radar Division conducts research on basic physical phenomena of importance to radar and related sensors, investigates new engineering techniques applicable to radar, demonstrates the feasibility of new radar concepts and systems, performs related systems analyses and evaluation of radar, and provides special consultative services. The emphasis is on new and advanced concepts and technology in radar and related sensors that are applicable to enhancing the Navy's ability to fulfill its mission.



Multifunction Radio Frequency (MRF) Testbed.

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## **INFORMATION TECHNOLOGY DIVISION** – Code 5500 – [itdinfo@nrl.navy.mil](mailto:itdinfo@nrl.navy.mil)

The Information Technology Division conducts basic research, exploratory development, and advanced technology demonstrations in the collection, transmission, processing, presentation, and distribution of information to provide information superiority and distributed networked force capabilities that improve Naval operations across all mission areas. The Division provides immediate solutions to current operational needs as required while developing those technologies necessary to implement the Navy after next.



The Dynamic Spectrum Access Laboratory utilizes a Universal Software Radio Peripheral environment allowing scientists to conduct communications-based spectrum utilization and efficiency simulations prior to field testing.

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## **OPTICAL SCIENCES DIVISION** – Code 5600 – [optinfo@nrl.navy.mil](mailto:optinfo@nrl.navy.mil)

The Optical Sciences Division carries out a variety of research, development, and application-oriented activities in the generation, propagation, detection, and use of radiation in the wavelength region between near-ultraviolet and far-infrared wavelengths. The research, both theoretical and experimental, is concerned with discovering and understanding the basic physical principles and mechanisms involved in optical devices, materials, and phenomena. The development effort is aimed at extending this understanding in the direction of device engineering and advanced operational techniques. The applications activities include systems analysis, prototype system development, and exploitation of R&D results for the solution of optically related military problems. In addition to its internal program activities, the Division serves NRL specifically and the Navy generally as a consulting body of experts in optical sciences. The work in the Division includes studies in quantum optics, laser physics, optical waveguide technologies, laser-matter interactions, atmospheric propagation, holography, optical data processing, fiber-optic sensor systems, optical systems, optical materials, radiation damage studies, IR surveillance and missile seeker technologies, IR signature measurements, and optical diagnostic techniques. A portion of the effort is devoted to developing, analyzing, and using special optical materials.



Creating fiber laser made up from rare earth elements by lowering a silica rod into a kiln draw tower.

## TACTICAL ELECTRONIC WARFARE DIVISION - Code 5700 - ewinfo@nrl.navy.mil

The Tactical Electronic Warfare Division is responsible for research and development in support of the Navy's tactical electronic warfare requirements and missions. These include electronic warfare support measures, electronic countermeasures, and supporting counter-countermeasures, as well as studies, analyses, and simulations for determining and improving the effectiveness of these systems.

Petty Officer 3rd Class Michael Eubanks works in the blue light of the Electronic Warfare module as he stands the Advanced Combat Direction Systems watch aboard the aircraft carrier USS Kitty Hawk (CV 63). DoD photo by Petty Officer 3rd Class Chris D. Howell, U.S. Navy. (Released)



## LABORATORIES FOR COMPUTATIONAL PHYSICS AND FLUID DYNAMICS

Code 6040 - comphyinfo@nrl.navy.mil

The Laboratories for Computational Physics and Fluid Dynamics (LCP&FD) are responsible for the research leading to and the application of advanced analytical and numerical capabilities that are relevant to NRL, Navy, Department of Defense, and other Government agencies. This research is pursued in the fields of compressible and incompressible fluid dynamics, reactive flows, fluid/structure interactions including submarine and aerospace applications, atmospheric and solar geophysics, magnetoplasma dynamics, application of parallel processing to large-scale problems such as unsteady flows of contaminants in and around cities, advanced propulsion concepts, flame dynamics for shipboard fire safety, jet noise reduction, and other disciplines of continuum computational physics as required to further the overall mission of NRL. The specific objectives of the LCP&FD are to develop and maintain state-of-the-art analytical and computational capabilities in fluid dynamics and related fields of physics; to establish in-house expertise in parallel processing for large-scale scientific computing; to perform analyses and computational experiments on specific relevant problems using these capabilities; and to transfer this technology to new and ongoing projects through cooperative programs with the research divisions at NRL and elsewhere.



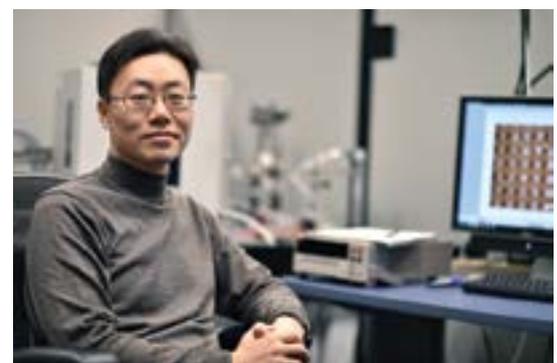
CT-Analyst crisis management software provides instantaneous predictions of an airborne contaminant plume.

## CHEMISTRY DIVISION - Code 6100 - cheminfo@nrl.navy.mil

The Chemistry Division conducts basic research, applied research, and development studies in the broad fields of chemical/structural diagnostics, reaction rate control, materials chemistry, surface and interface chemistry, corrosion passivation, environmental chemistry, and ship safety/survivability. Specialized programs within these fields include coatings, functional polymers/elastomers, clusters, controlled release of energy, physical and chemical characterization of surfaces, electrochemistry, assembly and properties of nanometer structures, tribology, chemical vapor deposition/etching, atmosphere analysis and control, environmental protection/reclamation, prevention/control of fires, mobility fuels, modeling/simulation, and miniaturized sensors for chemical, biological, trace analysis and data fusion, and explosives.

The Navy Technology Center for Safety and Survivability is part of NRL's Chemistry Division. To enhance protection of Navy personnel and platforms from damage and injury in peace and wartime, this Center performs research, development, test and evaluation on fire and personnel protection, fuels, chemical defense, submarine atmospheres, and damage control aspects of ship and aircraft survivability; supports Navy and Marine Corps requirements in these areas; and acts as a focus for technology transfer in safety and survivability.

The Division's Marine Corrosion Facility, located in Key West, Florida, addresses problems in corrosion and marine fouling. This laboratory resides in an unparalleled site for natural seawater exposure testing and marine related materials evaluation.



An NRL materials research engineer performs materials characterization with atomic force microscopy.

## **MATERIALS SCIENCE AND TECHNOLOGY DIVISION** – Code 6300 – [materialinfo@nrl.navy.mil](mailto:materialinfo@nrl.navy.mil)

The Materials Science and Technology Division conducts basic and applied research in functional and structural materials and engages in exploratory and advanced development to generate new Navy technologies and defense capabilities. The Division efforts encompass metals, ceramics, polymers, composites, and biological materials for electrical, magnetic, optical, plasmonic, chemical, mechanical, and energy technologies. Major Division focus areas include fundamental material physics, innovative device design, performance in extreme environments, power and energy, materials informatics, and the interface between materials and biology. These efforts are performed by multidisciplinary teams of materials scientists, physicists, chemists, and engineers working at the atomic, nano, microstructural, mesostructural, and macroscopic scales. The integrated use of new experimental and computational techniques accelerates new scientific understanding and innovative engineering solutions. Advanced materials synthesis, processing, characterization, diagnostic capabilities, performance prediction methods, and life-cycle management methods are developed to further new device design, prototyping, and testing methods.



An NRL physicist works on an aberration-corrected scanning transmission electron microscope called PRISM.

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## **PLASMA PHYSICS DIVISION** – Code 6700 – [plasmainfo@nrl.navy.mil](mailto:plasmainfo@nrl.navy.mil)

The Plasma Physics Division conducts a broad theoretical and experimental program of basic and applied research in plasma physics, space plasmas, intense electron and ion beams and photon sources, atomic physics, pulsed power sources, laser physics, advanced spectral diagnostics, and nonlinear systems. The effort of the Division is concentrated on a few closely coordinated theoretical and experimental programs. Considerable emphasis is placed on large-scale numerical simulations related to plasma dynamics; ionospheric, magnetospheric, and atmospheric dynamics; nuclear weapons effects; inertial confinement fusion; atomic physics; plasma processing; nonlinear dynamics and chaos; free electron lasers and other advanced radiation sources; advanced accelerator concepts; and atmospheric laser propagation. Areas of experimental interest include laser–plasma, laser–electron beam, and laser–matter interactions, high-energy laser weapons, laser shock hydrodynamics, thermonuclear fusion, electromagnetic wave generation, the generation of intense electron and ion beams, large-area plasma processing sources, electromagnetic launchers, high-frequency microwave processing of ceramic and metallic materials, advanced accelerator development, inductive energy storage, laboratory simulation of space plasma phenomena, high-altitude chemical releases, and in situ and remote sensing space plasma measurements.

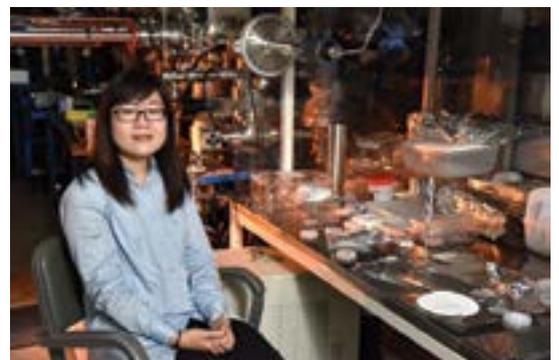


Ionospheric plasma physics and spacecraft diagnostics are studied in the Space Chamber Facility.

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## **ELECTRONICS SCIENCE AND TECHNOLOGY DIVISION** – Code 6800 – [elecinfo@nrl.navy.mil](mailto:elecinfo@nrl.navy.mil)

The Electronics Science and Technology Division conducts programs of basic science and applied research and development in nanoscience and nanotechnology, surface and interface sciences, electronic materials, computational modeling and simulation, power electronics, microwave, millimeter, and sub-millimeter technology, optoelectronics, photovoltaics, and radiation effects. The activities of the Division integrate device research with basic materials investigations and with systems research and development needs.



An NRL postdoctoral researcher focuses on property control by plasma-modified atomic layer deposition (ALD) of oxides for non-volatile memory applications.

## CENTER FOR BIO/MOLECULAR SCIENCE AND ENGINEERING – Code 6900 – biomolinfo@nrl.navy.mil

The Center for Bio/Molecular Science and Engineering is using the tools of modern biology, physics, chemistry, and engineering to develop advanced materials and sensors. The long-term research goal is first to gain a fundamental understanding of the relationship between molecular architecture and the function of materials, then apply this knowledge to solve problems for the Navy and Department of Defense community. The key theme is the study of complex bio/molecular systems with the aim of understanding how “nature” has approached the solution of difficult structural and sensing problems. Technological areas currently being studied include molecular and microstructure design, molecular biology, self-assembly, controlled release and encapsulation, and surface patterning and modification. Much of the research deals with the self-assembly of lipids, proteins, and liquid crystals into complex microstructures for use in advanced material applications, and the harnessing of the recognition functions of proteins and cells for the development of advanced sensors. A highly multidisciplinary staff is required to pursue these research and development programs. The Center provides a stimulating environment for cross-disciplinary programs in the areas of immunology, biochemistry, electrochemistry, inorganic and polymer chemistry, microbiology, microlithography, photochemistry, biophysics, spectroscopy, advanced diagnostics, organic synthesis, and electro-optical engineering.



Microbial electrochemical reactors used to study electrode-microbe electrical interactions which are the basis of microbial electrochemistry and microbial electronics.

## ACOUSTICS DIVISION – Code 7100 – acousinfo@nrl.navy.mil

The Acoustics Division conducts basic and applied research addressing the physics of acoustic signal generation, propagation, scatter, and detection with the objective of improving the strategic and tactical capabilities of the Navy and Marine Corps in the ocean and land operational environment. The Division’s scientists and engineers perform collaborative research with scientists affiliated with national and international academic, private, and governmental research organizations. The Division’s research spans classical and quantum physics, signal processing, the impact of fluid dynamics on the ocean sound speed field, the propagation and scatter of acoustic signals in the ocean and land environments, structural and physical acoustics including the development of microelectromechanical systems (MEMS) and nanotechnology based sensors, and the application of networked unmanned underwater vehicles and associated sensors to the Navy’s antisubmarine warfare, mine countermeasures, and intelligence, surveillance, and reconnaissance missions.



NRL's Reliant unmanned undersea vehicle with towed acoustic array is deployed during a long range active acoustics experiment.

## REMOTE SENSING DIVISION – Code 7200 – remseninfo@nrl.navy.mil

The Remote Sensing Division conducts a program of basic and applied research aimed at the development of new concepts for sensors and imaging systems for objects and targets on Earth, in the near-Earth environment, and in deep space. The research, both theoretical and experimental, deals with discovering and understanding the basic physical principles and mechanisms that give rise to target and background emission and to absorption and emission by the intervening medium. The accomplishment of this research requires the development of sensor systems technology. This development effort includes active and passive sensor systems to be used for the study and analysis of the physical characteristics of phenomena that give rise to naturally occurring background radiation, such as that caused by Earth’s atmosphere and oceans, as well as human-made or induced phenomena, such as ship/submarine hydrodynamic effects. The research includes theory, laboratory, and field experiments leading to ground-based, airborne, and space-based systems for use in such areas as environmental remote sensing (including improved meteorological support systems for the operational Navy), astrometry, astrophysics, surveillance, and nonacoustic antisubmarine warfare. Special emphasis is given to developing space-based platforms and exploiting existing space systems.



The Hyperspectral Imager for the Coastal Ocean (HICO) was launched to the International Space Station in September 2009 and is shown attached to the Station in this NASA photograph.

## OCEAN SCIENCES DIVISION – Code 7300 – [oceaninfo@nrl.navy.mil](mailto:oceaninfo@nrl.navy.mil)

The Ocean Sciences Division conducts a RDT&E program in biological, chemical, dynamical, and physical processes of the open ocean, coastal and littoral areas, marine boundary layers as well as marine geology, geophysics, geoaoustics, and mapping and charting geodesy. The ocean science research thrusts are twofold: a) encompassing the water column from the air-ocean interface into the seabed and b) along the seabed from the deep ocean up through the ocean-land interface. Within the water column the research is both theoretical and experimental in nature and is focused on understanding open ocean, coastal, and littoral area hydro/thermodynamics, waves, tides, circulation, ice dynamics, air-sea exchanges, optics, bioluminescence, and microbially induced corrosion/metal microbe interaction. This research is based on the synthesis of numerical-dynamical models, theory, and results of laboratory and field experiments and measurements using in-situ and remote sensing systems, ships, satellites, buoys, moorings, and unmanned aerial, ocean surface and underwater systems. The combination of models and observations is used to develop ocean environmental prediction systems. The Division research also includes analyses of biological-chemical reactions on marine surfaces. In the second thrust area, the Division does basic and applied research in the fields of marine geology, geophysics and geodetics with emphasis on understanding seabed geologic processes and predicting their impact on acoustics models as well as bottom mounted systems and digital databases required to support deployment and optimum utilization of emerging Navy anti-submarine warfare systems and support to traditional warfare scenarios. The Division also serves as the Navy's subject matter expert in the areas of geospatial information and services. It focuses on scientific and technological advances in collection, processing, analysis and dissemination of all forms of geospatial and environmental information. The Division provides vital geospatial expertise to Naval and Intelligence Community components.



NRL scientists prepare to deploy a bottom-mounted SEPTR mooring in the Gulf of Mexico.

The Division program is designed to be responsive to, and to anticipate, Navy and Marine Corps needs. The Division program participates in and is coordinated and interactive with DoD, Navy, and other NRL Division programs and activities, the Office of Naval Research (ONR) Research Program, Warfare Centers and other governmental agencies including the United States Geological Survey (USGS) and the National Geospatial Agency (NGA) that are involved in ocean science activities. Transition of Division products to DoD, Navy system developers, and operational Navy and civilian (dual-use) programs is a primary goal. The Division collaborates and cooperates with scientists from the academic community and other U.S. laboratories and foreign laboratories.

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## MARINE METEOROLOGY DIVISION – Code 7500 – [meteorinfo@nrl.navy.mil](mailto:meteorinfo@nrl.navy.mil)

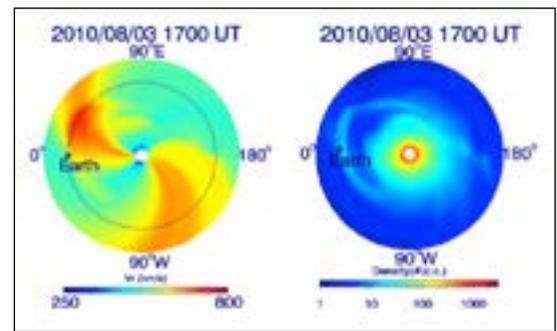
The Marine Meteorology Division, located in Monterey, CA, conducts a basic and applied research and development program designed to improve scientific understanding of atmospheric processes that impact Fleet operations and to develop automated systems that analyze, simulate, predict, and interpret the structure and behavior of these processes and their effect on naval weapons systems. Basic and applied research includes work in air-sea interaction, aerosol and cloud physics, atmospheric turbulence, orographically forced flow, atmospheric predictability, scale interactions observation impact, advanced data assimilation, ensemble prediction, tropical dynamics, and numerical methods. Research and development ranges from development of atmospheric analysis/forecast systems and satellite data products to the development of tactical decision aids for operations support. Interdisciplinary research supports the development of coupled analysis/forecast systems, including components for ocean, wave, land surface, aerosol, chemistry, and middle atmosphere prediction. The Division is co-located with the Fleet Numerical Meteorology and Oceanography Center (FNMOC) and has developed and transitioned to FNMOC and other operational centers the data assimilation, global, and mesoscale weather forecast models, aerosol prediction systems, and satellite applications products that form the backbone of the Navy's worldwide environmental forecasting capability. Specialties of the Division include numerical weather prediction, data assimilation, tropical cyclones, marine boundary layer processes, aerosols, rapid environmental assessment, environmental decision aids, and satellite data analysis, interpretation, and application.



The Copernicus Sentinel-3 satellite captured Hurricane Dorian as it barreled toward the Bahamas and Florida. Photo Credit: ESA

## SPACE SCIENCE DIVISION – Code 7600 – [spasciinfo@nrl.navy.mil](mailto:spasciinfo@nrl.navy.mil)

The Space Science Division conducts a broad-spectrum research, development, test, and evaluation program in solar-terrestrial physics, astrophysics, upper/middle atmospheric science, and astronomy. Division researchers develop instruments to be flown on satellites, sounding rockets, and balloons; specialized ground-based facilities; and mathematical models. Researchers apply these and other capabilities to the study of the atmospheres of the Sun and Earth, including solar activity and its effects on Earth's ionosphere, upper atmosphere, and middle atmosphere; laboratory astrophysics; and the unique physics and properties of celestial sources. The science is important to orbital tracking, radio communications, and navigation that affect the operation of ships and aircraft; utilization of the near-space and space environment of the Earth; and the fundamental understanding of natural radiation and geophysical phenomena.



Solar wind modeling.

## SPACE SYSTEMS DEVELOPMENT DIVISION – Code 8100 – [spasysinfo@nrl.navy.mil](mailto:spasysinfo@nrl.navy.mil)

The Space Systems Development Division (SSDD) is the space and ground support systems research and development organization of NRL's Naval Center for Space Technology. The primary objective of the SSDD is to develop command, control, communications, computers, and intelligence, surveillance, and reconnaissance hardware and software solutions to space, airborne, and ground applications to respond to Navy, Department of Defense, and national mission requirements with improved performance, capacity, reliability, efficiency, and/or life cycle cost. The Department must derive system requirements from the mission, develop architectures in response to these requirements, and design and develop systems, subsystems, equipment, and implementation technologies to achieve the optimized, integrated operational space, airborne, and ground system. These development responsibilities extend across the entire space/airborne/ground spectrum of hardware, software, and advanced technologies, including digital processing and control, analog systems, power, communications, payload command and telemetry, radio frequency, optical, payload, and electromechanical systems, as well as systems engineering.



Midway Research Center satellite calibration facility, Stafford, VA.

## SPACECRAFT ENGINEERING DIVISION – Code 8200 – [spaenginfo@nrl.navy.mil](mailto:spaenginfo@nrl.navy.mil)

The Spacecraft Engineering Division (SED) is the focal point for the Navy's capability to design and build spacecraft. Activities range from concept and feasibility planning to on-orbit initial operational capability for NRL's space systems. The SED provides spacecraft bus expertise for the Navy and maintains an active in-house capability to develop satellites; manages Navy space programs through engineering support and technical direction; in concert with the Space Systems Development Department, designs, assembles, and tests spacecraft and space experiments, including all aspects of space, launch, and ground support; analyzes and designs structures, mechanisms, and a variety of control systems, including attitude, propulsion, reaction, and thermal; integrates satellite designs, launch vehicles, and satellite-to-boost stages; and functions as a prototype laboratory to ensure that designs can be transferred to industry and incorporated into subsequent satellite hardware builds.



Morphing waverider model used in hypersonics research.

# Civilian Employment & Direct Hire

## Civilian Employment & Direct Hire Authorities – Scientific and Engineering Opportunities with Advanced Degrees, Bachelor’s Degrees and Veterans

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For direct hire opportunities for Science and Engineering (S&E) professionals with advanced degrees, bachelor’s degrees and veterans, applications are accepted on a continuous basis. Applicants must submit resume and transcripts. Candidates must meet minimum qualification standards as described in the Office of Personnel Management’s (OPM) operating manual, “Qualification Standards for General Schedule Positions.” Qualified candidates may be appointed to S&E positions in fields such as aerospace, ceramics, chemical, computer, electronics/electrical, materials, and mechanical engineering, astronomy, biology, chemistry, computer science, engineering psychology, geology, geophysics, materials science, mathematics, metallurgy, meteorology, physical science, physics, and oceanography.

Salary is set commensurate with selectee’s background, experience, and market considerations. The Naval Research Laboratory is under an approved Personnel Demonstration Project. To learn more about our Demonstration Project, as well as our benefits package, applicants are encouraged to visit NRL’s Careers web site at <http://www.nrl.navy.mil/careers>.

(202) 767-3031

U.S. Naval Research Laboratory  
4555 Overlook Ave., SW Washington, DC 20375

## Veteran Candidates

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Qualified veteran candidates may be appointed to positions in the fields mentioned above, OR to any technician position that is in direct support of research and development, i.e., engineering technician, electronics technician, physical science technician, etc. Veteran candidates appointed to a technician position must meet minimum qualification requirements as described in OPM’s operating manual, operating manual, “Qualification Standards for General Schedule Positions” and meet any possible selective placement factor identified for the position to be filled.

<https://www.nrl.navy.mil/careers>

(202) 767-3031

U.S. Naval Research Laboratory  
4555 Overlook Ave., SW Washington, DC 20375  
Washington, DC 20036

## We are **protectors**

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With a mission of ensuring the safety of our naval forces, we’ve made advancements that impact all humankind. From improving the ability to predict potentially catastrophic storms to defeating cyber attacks, we’re working towards a safer world.

## Scientific, Technical, Engineering and Mathematics (STEM) STEM Student Employment Program (SSEP)

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SSEP is a direct hire authority for undergraduate- and graduate- degree seeking students enrolled in STEM majors. Students can work full-time or part-time and those on appointments scheduled to last longer than 90 days will earn annual and sick leave each pay period.

To be eligible for the program, students must be continuously enrolled in a STEM degree program on at least a half-time basis at a qualifying education institution. Students hired into the NP career track (Science & Engineering Professional) must maintain a 3.0 GPA (based on a 4.0 scale) in a related degree field. Students hired into positions in the NR career track (Science & Engineering Technical) must maintain a 2.5 GPA (based on 4.0 scale). Conversion to permanent, although not guaranteed, may be available upon degree program completion. U.S. Citizenship is required for all entry-level positions.

For more information and to apply [visit: www.nrl.navy.mil/careers/students/ssep](http://www.nrl.navy.mil/careers/students/ssep) or contact the Human Resources Office at (202) 767-8313.

## Pathways Internship Program

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The Pathways Internship Program provides students enrolled in a wide variety of educational institutions from high school to graduate level, apply to vacancy announcements and are selected from certificates. Interns work full-time or part-time and those on appointments scheduled to last longer than 90 days will earn annual and sick leave each pay period.

To be eligible for the program, students must be continuously enrolled in high school or in a college degree program on at least a half-time basis at a qualifying education institution. Students hired into positions in the NR career track (Science & Engineering Technical) must maintain a 2.5 GPA (based on 4.0 scale). Conversions to permanent, although not guaranteed, may be available when students complete at least 640-hours before completing the degree program requirements. U.S. Citizenship is required for all entry-level positions.

Pathways internship openings are announced quarterly on the USAJOBS website. Students MUST apply to be USAJOBS vacancy announcements in order to be considered for a Pathways intern position. Visit our website for more information on how to apply and vacancy announcement dates.

[www.nrl.navy.mil/careers/students/pathways](http://www.nrl.navy.mil/careers/students/pathways).

For more information, contact NRL's Human Resources Office at (202) 767-8313 or [intern@nrl.navy.mil](mailto:intern@nrl.navy.mil).

## Student Volunteers

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The Student Volunteer Program helps students gain valuable experience by allowing them to voluntarily perform educationally related work at NRL. Student volunteers are not compensated. Students must be enrolled at least half-time at a qualifying educational institution, must be at least 16 years of age, and must be a U.S. Citizen. Applications are accepted year-round. To apply, submit a resume and either an unofficial transcript that shows current enrollment in college or a recent high school report card to:

[www.nrl.navy.mil/careers/students/volunteers](http://www.nrl.navy.mil/careers/students/volunteers)

For more information, contact NRL's Human Resources Office at (202) 767-8313.

NRL participates in E-Verify

## Science and Engineering Apprenticeship Program (SEAP)

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SEAP offers select high school students a unique opportunity to explore careers in science and technology by serving as junior research associates. SEAP students spend eight weeks in the summer working full-time under the mentorship of NRL scientists and engineers. Students actively engage in research problems and present a final research paper. NRL's program is one of the largest in the Department of Defense. Students must be in high school grades 9-12; at least 15 years of age; U.S. citizens; and must be recommended by a high school official (guidance counselor, math teacher, or science teacher). SEAP students receive a stipend. Information and application materials are available at:

<http://seap.asee.org>  
(202) 649-3833  
[seap@asee.org](mailto:seap@asee.org)

NRL's program coordinator: <https://navalsteminterns.us/seap/index.html> or (202) 767-8324

## Naval Research Enterprise Intern Program (NREIP)

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This ten-week summer internship program provides opportunities for undergraduate and graduate students to participate in research under the guidance of a mentor at a participating Navy laboratory. Applicants must be enrolled at an accredited U.S. college or university. Sophomores, juniors, seniors, and graduate students are eligible. Participating students receive a stipend. Applicants must be U.S. citizens. Information and application materials are available at:

<http://nreip.asee.org>  
(202) 649-3833  
[nreip@asee.org](mailto:nreip@asee.org)

NRL's Program Coordinator: [nreip@nrl.navy.mil](mailto:nreip@nrl.navy.mil)

## National Defense Science and Engineering Graduate (NDSEG) Fellowship Program

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This highly competitive three-year fellowship is awarded to recent outstanding graduates to pursue a doctoral degree in one of fifteen supported scientific and engineering disciplines critical to the Navy (such as electrical engineering, computer sciences, material sciences, applied physics, and ocean engineering). Award recipients are encouraged to continue their study and research in a Navy laboratory during the summer. The fellowship pays full tuition, required fees, and a stipend. Applicants must be U.S. citizens. Information and application materials are available at:

<http://ndseg.asee.org>  
(202) 649-3831  
[ndseg@asee.org](mailto:ndseg@asee.org)

NRL's Program Coordinator: [ndseg@nrl.navy.mil](mailto:ndseg@nrl.navy.mil) or (202) 767-8323

## Summer Research Program for Historically Black College or University (HBCU) or Minority Institutes (MI)

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This ten-week summer internship program provides opportunities for undergraduate and graduate students to participate in research under the guidance of a mentor at the Naval Research Laboratory. Preference is given to students planning careers in science, technology, engineering and mathematics (STEM) disciplines. Applicants must be U.S. citizens or have permanent residency and be enrolled at a HBCU, MI, or Tribal College or University. Participating students receive a stipend. Information and application materials are available at:

[TWCAS-NRL HBCU Information Page](#)  
On-line application can be found at <http://nrl.e.twc.edu/>

# POSTDOCS

NRL hosts several postdoctoral research associates each year through the National Research Council (NRC) and the American Society for Engineering Education (ASEE). These competitive positions provide postdoctoral scientists and engineers the opportunity to pursue research on problems, largely of their own choice, that are compatible with the interests of NRL. Postdoctoral researchers are guest investigators, not employees of NRL. Applicants must be U.S. citizens or U.S. permanent legal residents.

## **NRC-NRL Cooperative Research Associateship Program**

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NRC associateships are awarded to persons who have held a doctorate less than five years at the time of application and are made initially for one year, renewable for a possible second and third year at the discretion of NRL. The stipend level is set annually.

Application deadlines are February 1, May 1, August 1, and November 1. Information and application materials are found at the program web site.

<http://www.national-academies.org/rap>  
(202) 334-2760  
[rap@nas.edu](mailto:rap@nas.edu)

NRC Research Associateship Programs  
500 Fifth Street, NW  
Washington, DC 20001

NRL's Program Coordinator: [nrc@nrl.navy.mil](mailto:nrc@nrl.navy.mil) or (202) 767-8323

## **ASEE-NRL Postdoctoral Fellowship Program**

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ASEE fellowship awards are made to persons who have held a doctorate for less than five years at the time of application and are made initially for one year, renewable for a possible second and third year at the discretion of NRL. The stipend level is set annually.

Applications are accepted year-round. Information and application materials are found at the program web site.

<http://www.asee.org/fellowship-programs>  
(202) 350-5763  
[postdocs@asee.org](mailto:postdocs@asee.org)

American Society for Engineering Education  
1818 N Street, NW, Suite 600  
Washington, DC 20036

NRL's Program Coordinator: [asee@nrl.navy.mil](mailto:asee@nrl.navy.mil) or (202) 767-8323

## **We are protectors**

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With a mission of ensuring the safety of our naval forces, we've made advancements that impact all humankind. From improving the ability to predict potentially catastrophic storms to defeating cyber attacks, we're working towards a safer world.

# FACULTY

## Office of Naval Research Summer Faculty Research and Sabbatical Leave Program

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This Office of Naval Research program provides for university faculty members to work for ten weeks (or longer, for those eligible for sabbatical leave) with professional peers at NRL on research of mutual interest. Applicants must hold a teaching or research position at a U.S. college or university.

Stipend level is based on experience. A relocation allowance is available, and travel expenses are reimbursed.

Deadline for applications is typically in December. Information and application materials are available at:

<http://www.onr.navy.mil/en/Education-Outreach/Summer-Faculty-Research-Sabbatical.aspx>

ONR Education Program: [maria.e.honeycutt.ctr@navy.mil](mailto:maria.e.honeycutt.ctr@navy.mil)

NRL's Program Coordinator: [sfrp@nrl.navy.mil](mailto:sfrp@nrl.navy.mil)

## NRL/U.S. Naval Academy Cooperative Program for Scientific Interchange

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This program allows faculty members of the U.S. Naval Academy to participate in NRL research. This collaboration benefits the Academy by making available to faculty members the scientific expertise of the NRL professional staff and the use of NRL research facilities; and strengthens NRL's research program by making available the scientific expertise of the Naval Academy faculty.

The appointment begins after the spring semester and generally lasts for ten weeks. USNA faculty members may contact the USNA Office of the Director of Research for further information.

United States Naval Academy, Director of Research, Annapolis, MD 21402 • (410) 293-2504

NRL's Program Coordinator: [usna@nrl.navy.mil](mailto:usna@nrl.navy.mil)

# BENEFITS

The U.S. Naval Research Laboratory is dedicated to supporting our employees and improving their quality of life. NRL offers an outstanding government employee benefits package.

We offer a retirement plan, a 401(k)-type savings plan (the government Thrift Savings Plan), and pay a portion of group health and life insurance. Additional plans include long term care disability insurance, dental and vision insurance, and flexible spending account options. Employees can earn up to five weeks of vacation annually, determined by total years of service, 13 sick days per year, and 10 paid federal holidays per year. More detailed information can be found at the Office of Personnel Management web site, [www.opm.gov](http://www.opm.gov).

As part of the federal government, NRL is a leader in providing family-oriented leave, leave sharing, variable work schedules, and telework arrangements.

**Federal Employee Retirement System (FERS).** Social Security, enrollment in the Thrift Savings Plan, and a defined benefit (Basic Annuity) make up the FERS competitive retirement plan.

**Flexible Spending Accounts.** Pay for out-of-pocket health care and dependent care expenses with pre-tax money.

**Donated Leave Sharing.** Employees may transfer unused accrued annual leave to other federal employees who need it because of a medical emergency.

**Monetary and Honorary Awards.** The Navy recognizes creativity in the workplace by rewarding individuals and teams for contributions, with monetary, honorary, and/or time-off awards.

# BENEFITS/Training Programs

**Transit Subsidy.** Employees who use public transportation to get to work may be eligible for reimbursement of qualified transportation expenses.

**Civilian Employee Assistance Program (DONCEAP).** A comprehensive program that includes work/life benefits as well as support for a variety of issues (including childcare, finances, eldercare, identity theft, legal services and more) — at no charge. Services are offered as a benefit from the Department of the Navy to you and your family members.

**Monetary and Honorary Awards.** The Navy recognizes creativity in the workplace by rewarding individuals and teams for contributions, with monetary, honorary, and/or time-off awards.

**Recreation Club.** The NRL Fitness Center, located at the NRL main site (Building 52), a satellite facility.

NRL encourages the professional development of all our employees through graduate and advanced training programs, leadership development programs, short courses, conference attendance, mentor programs, and on-the-job training.

Four of our long-established advanced competitive training programs are the following:

**The Edison Memorial Graduate Training Program.** This program enables employees to pursue graduate-level work that may lead to a graduate degree in their fields at universities local to their work site. Participation in the program normally consists of the employee working 24 hours per week at the work site, while carrying an appropriate academic load.

**Select Graduate Training Program.** This program develops individuals of exceptional talent by assisting them in full-time graduate study that may lead to the acquisition of a graduate degree at a facility of their choice within the continental United States. It provides half-salary and half-benefits to participating employees. Participants are expected to be enrolled full-time, year-round.

**Naval Postgraduate School.** The Naval Postgraduate School (NPS), located in Monterey, California, provides graduate programs to enhance the technical preparation of naval officers and civilian employees who serve the U.S. Navy in the fields of science, engineering, operations, analysis, and management. This program enables employees to pursue full-time graduate studies that may lead to the completion of a graduate degree in their field. Participants receive full salary, leave, benefits, and certain travel-related expenses.

**Advanced Graduate Research Program (Sabbatical Program).** Selected candidates are given the opportunity to do collaborative research or study for up to one fiscal year at an appropriate research facility or university worldwide. Participants receive full salary, leave, benefits, and certain travel-related expenses.

NRL job openings can be found at: <http://www.nrl.navy.mil/careers/>. Find out more at: [www.nrl.navy.mil](http://www.nrl.navy.mil)