PROGRAM OVERVIEW

Description

The 10-week 2019 NASA Glenn Faculty Fellowship Program (NGFFP) is a residential research program that is open to full-time science, technology, engineering, and mathematics (STEM) faculty members who are U.S. citizens teaching at accredited U.S. universities and colleges. An NGFFP award is for one summer residency at Glenn Research Center (GRC) in Cleveland, OH. Past participants and applicants are eligible to apply. However, in 2019, preference is given to new applicants whose interests and qualifications match the mission and needs of GRC. Proposed faculty work must be aligned with one or more of the six GRC Core Competencies and/or cross-cutting engineering discipline(s), and focused research areas referenced on page 4, for meeting the Center commitments to advance NASA's mission.

The NGFFP seeks to mutually benefit GRC and faculty participants by

- Enhancing faculty professional knowledge through their engagement in relevant and cutting-edge research at GRC;
- Stimulating exchange of ideas among faculty and GRC researchers and engineers;
- Enriching and refreshing the research and instruction at U.S. academic institutions by infusing NASA mission-related research and technology content into classroom teaching; and
- Contributing to in-house research, technology, and engineering work packages and objectives of GRC in support of NASA's mission.

About NASA Glenn Research Center

NASA GRC offers a unique blend of aeronautics and space research, technology development, and space flight experience. The Center's Core Competencies and world-class research and technology advancements encompass in-space propulsion systems and cryogenic fluids; power, energy storage and conversion; air-breathing propulsion; physical sciences and biomedical technologies in space; materials and structures for extreme environments; and communications technology and development. The main campus of GRC is adjacent to the Cleveland Hopkins International Airport and contains 140 buildings, 24 major facilities, and more than 500 specialized research and test facilities. A satellite campus of GRC, the 6,400-acre Plum Brook Station, is located 50 miles west of Cleveland and offers four large world-class facilities for space technology and capability testing in support of NASA's mission and major programs.

As the lead NASA Center for air-breathing propulsion from subsonic to hypersonic speed, GRC develops, verifies, and transfers related technologies to U.S. industry. GRC also develops new and innovative turbomachinery technology to improve the reliability and performance, efficiency and affordability, capacity, and environmental compatibility of future aeronautical and space propulsion systems. Other GRC primary areas of expertise include a broad array of research, engineering, and technology development of aerospace power, space electronics, and launch and exploration vehicles. In addition, the Center has experience in space processes and experiments related to combustion and reacting systems as well as fluid physics and transport. Other technology development includes space flight systems; advanced renewable wind, solar, and coal energy; and the testing, evaluation, and advancement of wind turbines, fuel cells, and photovoltaics.

Application Period

Opens: Monday, November 19, 2018

Closes: Monday, January 21, 2019

Anticipated Announcement Date: April 19, 2019

Session Dates: June 3, 2019 to August 9, 2019

Extensions beyond the official 10-week Fellowship period may be granted, if deemed mutually beneficial and funding is available.

Core Hours: 8:30 AM to 4:30 PM (Monday through Friday)

Eligibility Requirements

- U.S. citizenship; and
- Tenured or tenure-track, full-time STEM faculty at 4-year accredited U.S. colleges and universities, or full-time STEM faculty at 2-year U.S. academic institutions.

Former NGFFP participants may apply for a second consecutive-year summer residency. However, in 2019, preference is given to new applicants whose interests and qualifications match the mission and needs of GRC.

Qualified faculty from majority- and minority-serving institutions, including underrepresented groups and persons with disabilities, are encouraged to apply. NASA GRC has a particular interest in attracting early career faculty (within first 5 years of faculty position) and faculty from minority-serving institutions (MSIs).

GRC is committed to implementing all Federal laws, regulations, and guidelines related to the development of affirmative employment and inclusion of persons with disabilities.

Participation Requirements

Fellows must:

- Engage in a continuous, full-time summer GRC Fellowship, without concurrent teaching elsewhere;
- Present their research outcome(s) at GRC, at near-end of the Fellowship;
- Disclose to GRC full information on Fellowship-derived new technology (which is or may be patentable), including any new process, machine, manufacture, composition of matter, or software;
- Submit a final written report on their research, on the last day of the Fellowship;
- Not schedule personal vacation time during the Fellowship period of participation;
- Participate in the NGFFP at GRC full-time for the complete 10 consecutive weeks, beginning on Monday, June 3, 2019; and
- Not receive remuneration from other organizations or programs, university or government sources during the 10-week onsite Fellowship at GRC.

Selection Process

Fellowships are awarded to STEM faculty with specific interests and experiences compatible with available opportunities within GRC host organizations. Such opportunities are typically consistent with the technical areas identified under AREAS OF INTEREST on page 4 of this document.

Notification

Applicants will be notified about their application outcome by Friday, April 19, 2019.

Compensation

The 10-week stipends for Faculty Fellows are as follows:

Assistant Professor	$15,000
Associate Professor	$17,000
Full Professor	$19,000

As guests of GRC, Faculty Fellows are effectively self-employed for tax purposes. Hence, Federal and state taxes will not be withheld from stipend payment. Fellows will be responsible for meeting any Federal and state tax obligations.

Fellows whose academic institutions are located more than 50 miles from GRC will receive a relocation allowance of $1,000, in addition to a round-trip travel allowance not exceeding $500.00.

Housing

A list of short-term accommodations within the vicinity of GRC will be emailed to incoming Faculty Fellows during the week of April 22, 2019, to assist Fellows in making their housing arrangements. The NGFFP does not provide additional living expenses for program participants.

AREAS OF INTEREST

Research, engineering, and technology engagements include the following NASA mission-related areas of interest grouped under **GRC's six Core Competencies and Cross-Cutting Engineering Disciplines**:

Air-Breathing Propulsion

- Aviation Safety Improvements
- Growth of Ice on Aircraft
- Engine Combustion
- Acoustics
- Turbomachinery and Turboelectric Systems
- Computational Fluid Dynamics (CFD)
- Propulsion System Aerodynamics
- Multidisciplinary Design, Optimization, Modeling, and Simulation

Communications Technology and Development

- Advanced Microwave Communications
- Networks, Architectures, and Systems Integration
- Information and Signal Processing Technologies
- Optical Communications
- Intelligent Systems—Smart Sensors and Electronic Systems Technologies
- Photonics; Instrumentation—Electronic
- Dynamic System Modeling and Controls

In-Space Propulsion and Cryogenic Fluids Management

- Electric (Ion) Propulsion Systems
- Chemical Propulsion Systems

Physical Sciences and Biomedical Technologies in Space

- Microgravity Fluid Physics and Transport
- Combustion Physics and Reacting Processes
- Bioengineering

Power, Energy Storage and Conversion

- Power Architecture, Generation, Distribution, Storage and Management
- Photovoltaic and Electrochemical Systems
- Thermal Energy Conversion
- Solid-State Thermoelectric Conversion
- Advanced Energy (Renewable Wind and Solar, Coal Energy, and Alternative Energy)

Materials and Structures for Extreme Environments

- High-Temperature Materials (Ceramic Matrix Components, Thermal Protection Seal)
- Electric Propulsion Materials (High Power Density Electric Motors)
- Lightweight Concepts (Aerogels, Nanomaterials)
- Mechanisms and Drive Systems (Shape Memory Alloy-Based Actuation)
- Flight Structures (Low-Impact Docking Seal)
- Computational Modeling

Cross-Cutting Engineering Disciplines

- Fluid and Cryogenic Systems
- Thermal Systems
- Systems Engineering
- Computer Systems and Networks

An optional, prior discussion with a potential GRC host organization can be helpful in determining a match between an applicant's desired area(s) of Fellowship and the needs of the organization. You may call Dr. Kankam, GRC University Affairs Officer, at (216) 433-6143, to initiate discussions.

Additional focused areas for research collaboration can be assessed at:
https://www.nasa.gov/content/additional-focused-areas-for-research-collaboration

APPLICATION FOR SUMMER 2019 FACULTY FELLOWSHIP

Last Name: _____ First Name: _____ Middle Initial: _____

Country of Citizenship: _____ (To be verified before participation in program)

Current Institution: _____ Current Position and Department: _____

* Is your institution a MSI? ❑ Y ❑ N * Are you Early Career Faculty? ❑ Y ❑ N

Home Address: _____

Work Address: _____

Telephone: _____ Telephone: _____

Email: _____ Fax: _____

Highest Academic Degree, Field, Institution: _____

Prioritize up to **3** "Areas of Interest" under the GRC Core Competencies (NGFFP 2019 Program Details, page 4):

1) _____
2) _____
3) _____

***Additionally, select your best matched Research Interest from the focused areas described at:**
https://www.nasa.gov/content/additional-focused-areas-for-research-collaboration.

Research Interest: _____

** Include a half-page write-up of your projected contribution(s) for each selected Area of Interest and focused area.

Special Field(s) of Knowledge: _____

Current Teaching Responsibility: _____

Current Research Area(s): _____

Sponsor(s) of Current Research (if any): _____

Have you previously participated in the GRC Faculty Fellowship? _____

If YES, state year(s) and GRC colleague(s): _____

Anticipated Fellowship Research Area: _____

Anticipated Glenn Host Organization and Colleague (if known): _____

APPLICATION FOR SUMMER 2019 FACULTY FELLOWSHIP (continued)

Include Statement of Academic Benefit (to be derived from Fellowship participation, 1-page limit)

Professional References (Name, title, phone number, and email address)

1. Dean or Department Head: _____

2. _____

3. _____

Email one electronic package including the following items to GRC-NGFFP@mail.nasa.gov:

(a) Completed application
(b) Curriculum vitae (CV)
(c) Statement of Academic Benefit

Include the following in the email subject line: APP-Applicant LastName-FirstInitial-NGFFP19

Applicant requests all recommendation letters be emailed to GRC-NGFFP@mail.nasa.gov

(a) Endorsement by your Dean or Department Head, including status of your academic tenure, is required.
(b) If desired, applicant may include up to two additional recommendations.

Include the following in the email subject line**:** RL-Applicant LastName-FirstInitial-NGFFP19

All application materials noted above must be received by 11:59 PM (EST) on Monday, January 14, 2019.

I certify that the information provided herein is complete and correct.

Signature: _____ Date: _____

Before submitting your application:

1. Check for completeness.
2. Ensure the subject line states the following: APP-Applicant LastName-FirstInitial-NGFFP19

OFFICE USE ONLY

Date Received:_____OWM:_____Weekly Stipend: $_____

Date Processed:_____PR Requirement:_____

Participant Information

NGFFP 2019 Application

Name (print): _____

In order to determine the degree to which members of each ethnic and racial group are reached by this announcement, NASA requests that applicants check the appropriate block(s) below. Submission of this information is ***VOLUNTARY***.

Please complete all questions, even if your response is "Do not wish to provide," and return with your application materials.

What is your ethnicity? (Check one)

- ☐ Do not wish to provide
- ☐ Hispanic or Latino
- ☐ Not Hispanic or Latino

Individual with a disability (Check one or more)

- ☐ Hearing impairment
- ☐ Visual impairment
- ☐ Mobility/orthopedic impairment
- ☐ Other _____
- ☐ None
- ☐ Do not wish to provide

What is your race? (Check one or more)

- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African-American
- ☐ Native Hawaiian or other Pacific Islander
- ☐ White
- ☐ Race not listed above
- ☐ Do not wish to provide

The Privacy Act of 1974 (PA) requires the National Aeronautics and Space Administration (NASA) to give each person the following notice when registering to participate in a NASA Education program or project through our online website https://www.nasa.gov/centers/glenn/education/index.html

The National Aeronautics and Space Act of 1958 § 403(a)(b), 42 U.S.C. § 2473 (c)(1), as amended allows us to collect the information we ask for on this form.

We use the information you provide on the form to register you to participate in a NASA Education event, activity, training session, workshop, program, or project. Completion of this form is voluntary; however, failure to provide the information requested may prevent you from participating in the NASA Education activity in which you are interested.

We may disclose information as necessary to NASA personnel, contractors, and partners in order to administer NASA Education programs and projects. We may disclose information to partnering informal or formal education institutions with whom you are affiliated. Finally, we may disclose information to NASA administrators and managers, Office of Management & Budget (OMB) officials, and members of Congress for the purposes of accountability and tracking of program and project efficiency and effectiveness.