



## PROGRAM OVERVIEW

**The application period for the 2017 NASA Glenn Faculty Fellowship Program (NGFFP) opens on Monday, December 5, 2016 and closes at 11:59 PM (EST) on Thursday, February 16, 2017.**

### **Fellowship Description**

The ten-week 2017 NASA Glenn Faculty Fellowship Program (NGFFP) is a residential research program which is open to full-time STEM faculty members who are U.S. citizens teaching at accredited U.S. universities and colleges. The NGFFP will be offered at NASA Glenn Research Center (GRC) in Cleveland, Ohio, from Monday, June 5, through Friday, August 11, 2017. Proposed faculty work must be aligned with one or multiple GRC Core Competencies and/or cross-cutting engineering discipline(s) for meeting the Center's commitments to advance NASA's mission.

The NGFFP seeks to mutually benefit GRC and the faculty participant 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 competencies and world-class research and technology advancements encompass space flight systems development; in-space propulsion systems and cryogenic fluids management; power, energy storage and conversion; air-breathing propulsion; physical science 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.

GRC is the lead NASA Center for air-breathing propulsion from subsonic to hypersonic speed, and 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, and fluid physics and transport. Other technology development includes advanced renewable wind, solar and coal energy, as well as the testing, evaluation and advancement of wind turbines, fuel cells and photovoltaics.



## AREAS OF INTEREST

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

### Air-Breathing Propulsion

- Aviation safety improvements
- Growth of ice on aircraft
- Engine Combustion
- Acoustics
- Turbomachinery & Turboelectric Systems
- Computational Fluid Dynamics (CFD)
- Propulsion System Aerodynamics
- Multidisciplinary Design, Optimization, Modeling and Simulation

### Communications Technology and Development

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

### In-Space Propulsion and Cryogenic Fluids Management

- Electric (Ion) Propulsion Systems
- Chemical Propulsion Systems

### Physical Sciences & Biomedical Technologies in Space

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

### Power, Energy Storage and Conversion

- Power Architecture, Generation, Distribution, Storage and Management
- Photovoltaic & 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



## HOW TO APPLY

Additional descriptions on GRC research opportunities for faculty may be accessed at the GRC Office of Education website - <http://www.nasa.gov/centers/glenn/education/> and by visiting the GRC portion of the NASA Postdoctoral Program (NPP) site: <https://npp.usra.edu>

### Eligibility

Requirements for faculty participation in the NGFFP are:

- U.S. citizenship;
- 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;
- Women, underrepresented groups, and persons with disabilities;
- Faculty from U.S. Department of Education-designated Minority Serving Institutions (MSIs), namely, Historically Black Colleges and Universities (HBCUs), Hispanic Serving Institutions (HSIs), Tribal Colleges Universities (TCUs), and Asian American and Native American Pacific Islander-Serving Institutions (AANAPISIs) are encouraged to apply.
- An NGFFP Award is for one summer residency at GRC, with option for a second year application.

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

### Requirements for NGFFP Award

Each selected Fellow will be **expected to**:

- **Not** receive remuneration from other organizations or programs, university or government sources during the ten-week on-site Fellowship at GRC;
- 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, patentable invention(s);
- Submit a final written report on their research, on the last day of the Fellowship;
- Complete a program feedback form, on-site, at the end of the Fellowship.

### Application

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 on the previous page of this document. 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.

Extensions beyond the official 10-week Fellowship period may be granted, if deemed mutually beneficial and when funding is available. The NGFFP participants are expected to schedule personal vacation time outside the Fellowship official period. A supporting hard copy of original version of a signed letter of recommendation from the Dean or Head of applicant's department must be mailed, under separate cover, to Dr. M. David Kankam at the following address, by the application due date (**February 16, 2017**):

Dr. M. David Kankam / University Affairs Officer-GRC,  
NASA Glenn Research Center, 21000 Brookpark Rd., MS 7-4, Cleveland, OH 44135  
Phone: (216) 433-6143, E-mail: [Mark.D.Kankam@nasa.gov](mailto:Mark.D.Kankam@nasa.gov)



## HOW TO APPLY (continued)

\*\* To expedite the review of applications, a complete set of the remainder of an applicant's electronic application package with individual files of the completed application form, other recommendation letters, and curriculum vitae must be submitted to: [Mark.D.Kankam@nasa.gov](mailto:Mark.D.Kankam@nasa.gov).

\*\* For ease of identification and assurance of timely receipt of a completed application, an applicant is advised to insert the following in the E-mail subject line: **NGFFP17\_Last Name, First Initial**

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### Compensation

The ten-week stipends for Faculty Fellows are:

Assistant Professor	\$14,000
Associate Professor	\$15,000
Full Professor	\$16,000

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.

A relocation allowance of \$1,000.00 will be provided to Fellows whose academic institutions are located more than fifty miles from GRC.

Faculty Fellows who are provided with relocation allowance will, additionally, receive a round-trip travel allowance of \$500.00.

### Housing

A list of short-term accommodations within the vicinity of GRC will be mailed to incoming Faculty Fellows not later than April 30, 2017, to assist them in making housing arrangements. The NGFFP does not provide additional living expenses for program participants.



APPLICATION FOR SUMMER 2017 FACULTY FELLOWSHIP

Last Name \_\_\_\_\_ First Name \_\_\_\_\_ Middle Initial \_\_\_\_\_

Country of Citizenship: \_\_\_\_\_

Current Institution: \_\_\_\_\_ Current Position & Department: \_\_\_\_\_

Home Address: \_\_\_\_\_

Work Address: \_\_\_\_\_

Telephone: \_\_\_\_\_ Telephone: \_\_\_\_\_

E-mail: \_\_\_\_\_ Fax: \_\_\_\_\_

Highest Academic Degree, Field, School, and Year: \_\_\_\_\_

Prioritize up to 3 "Areas of Interest" under the GRC Core Competencies (NGFFP 2017 Program Details p2 ):

- 1) \_\_\_\_\_
2) \_\_\_\_\_
3) \_\_\_\_\_

\*\* Include half-page write-up of your projected contribution(s) on each Area of Interest.

Special Field 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), & GRC colleague(s): \_\_\_\_\_

Anticipated Fellowship Research Area: \_\_\_\_\_

Anticipated Glenn Host Organization and Colleague (if known): \_\_\_\_\_



APPLICATION FOR SUMMER 2017 FACULTY FELLOWSHIP (continued)

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

Professional References (Name, Title, Telephone, and E-mail address)

- 1. Dean or Department Head: \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Send as separate files within the same E-mail (to Mark.D.Kankam@nasa.gov):

- (a) Curriculum vitae (CV); and
(b) Completed application form

Send a hard copy letter via regular mail that is originally signed by your Dean or Department Head, endorsing your NGFFP participation and stating the status of your academic tenure, to the attention of:

Dr. M. David Kankam, University Affairs Officer
NASA Glenn Research Center
21000 Brookpark Rd., Mail Stop 7-4
Cleveland, OH 44135

The application and all supporting materials must be received by 11:59 PM (EST) on Thursday, February 16, 2017. Incoming Faculty Fellows are expected to participate at NASA GRC, full-time for the complete 10 consecutive weeks, beginning on Monday, June 5, 2017.

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

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

When you are ready to submit your application, please:

- 1. Check for completeness of your application, then
2. Insert the following in the "Subject Line" of your E-mail: NGFFP17\_Last Name\_First Initial

NOTE: Applicants will be notified on their application outcome by Wednesday, April 20, 2017.

OFFICE USE ONLY

Date Received: \_\_\_\_\_ OWM: \_\_\_\_\_ Weekly Stipend: \$\_\_\_\_\_

Date Processed: \_\_\_\_\_ PR Requirement: