

**AC 2008-2015: THE NASA ADMINISTRATOR'S FELLOWSHIP PROGRAM  
(NAFP): BENEFITS TO THE HBCUS/MIS**

**Mohammad Alim, Alabama A&M University**

# **The NASA Administrator's Fellowship Program (NAFP): Benefits to the HBCUs/MIs (Historically Black Colleges and Universities / Minority Institutions)**

**Mohammad A. Alim,<sup>\*,1,3</sup> M. D. Aggarwal,<sup>2</sup> Benjamin G. Penn,<sup>3</sup> and Ashok  
K. Batra<sup>2</sup>**

<sup>1</sup>Department of Electrical Engineering, Alabama A & M University  
P. O. Box 297, Huntsville, Alabama 35762, U.S.A.

<sup>2</sup>Department of Physics, Alabama A & M University  
P. O. Box 1268, Huntsville, Alabama 35762, U.S.A.

<sup>3</sup>EV-43, Integrated Systems Health Management (ISHM) and Sensors Branch  
National Aeronautics and Space Administration (NASA)  
Marshall Space Flight Center (MSFC), Huntsville, Alabama 35812, U.S.A.

## **Abstract**

The NASA Administrator's Fellowship Program (NAFP) is for the faculty members of the HBCUs/MIs (Historically Black Colleges and Universities / Minority Institutions) and NASA career employees. This program has been in existence for over a decade. Each year approximately 12 fellows including 6 NASA (National Aeronautics and Space Administration) employees may be accommodated by this program. The NAFP program is directed toward promoting research and scholarly activities within the HBCUs/MIs. One of the strengths of the program is that the faculty members may go to the choice of NASA premises and get involved in research activities with NASA personnel, while the NASA employees go to their choice of HBCU/MI institutions to enhance research skills via interactions with the academic members. This exchange process renders exposure of a two-way traffic for both NASA employee and the HBCU/MI faculty. The training program for the NAFP fellows is extensive through participation in the workshops and conferences. At the end of the program the NAFP fellows return to their respective home institutions acquiring knowledge that was not previously realized. The knowledge acquired this way is beneficial to minority students via research exposure and interactions with the NASA employee. Both undergraduate and graduate students get opportunity to interact with the NAFP fellows in the classroom or during mentoring of capstone projects and, thus, become potential contributors to research that benefits NASA's program.

+++++

Key Words: NAFP, NASA, Administrator's Fellowship, HBCU/MI.

\*E-mail: <mohammad.alim@aamu.edu>

## **Introduction**

The NASA Administrator's Fellowship Program (NAFP) is a unique program designed to enhance the professional development of the NASA employees and the faculty members of the Science, Technology, Engineering, and Mathematics (STEM) faculty at the HBCUs/MIs (Historically Black Colleges and Universities / Minority Institutions). The program also strives to increase the capability of the HBCUs/MIs to respond to NASA's research, development, and educational needs. The NAFP is monitored and managed by the United Negro College Fund Special Programs Corporation (UNCFSPC).

NAFP grants STEM faculty of HBCUs/MIs fellowships the opportunity to conduct research at NASA Head Quarters, NASA Centers, NASA related research organizations, other government agencies and/or in the private sector. The faculty fellows pursue other developmental assignments conducive to the academic corner. These faculty fellows spend 12 months conducting research at a NASA center and 9 months in-residence at the home institution conducting NASA related research. The length of the program for faculty fellows is, thus, 21 months. By the same token NASA employees become part of the academic corner and engage in teaching and/or conducting research at a HBCU/MI not exceeding one academic school year (usually 9 months). They participate in developmental assignments at NASA Headquarters, NASA Centers, NASA related research organizations, other government agencies and/or in the private sector. The NASA employee fellows spend approximately 9 months at a HBCU/MI and 9-13 months in professional development assignments. The length of the program for the NASA employees ranges between 18 and 22 months.

The participation of the fellows from both NASA and academia allow increasing knowledge in scientific and technical arena that NASA utilizes besides enhancing the capability of the HBCUs/MIs. Thus, HBCUs/MIs become competent participant in the NASA-sponsored research and development (R&D) programs. The participation of the fellows allows NASA to share information about leading edge technologies and establish relationships with the HBCUs/MIs. In addition, fellows receive training in the latest methods of teaching mathematics, science, and engineering, and in the presentation of research results. These mutual benefits strengthen the fellows in their careers and provide dynamic skills and capabilities in the academic preparation of the students for the role of future scientists and engineers.

The objectives and beneficial aspects of the NASA Administrator's Fellowship Program are highlighted. The requirements to participate in this program and subsequent outcomes are discussed. The primary objective of the NASA Administrator's Fellowship Program is to enhance and promote scholarly activities within the skilled technocrats to benefit both HBCU/MI and NASA. These skilled technocrats, thus, become mutually interactive and help prepare the

future scholarly workforce utilizing student resources from the HBCU/MI. Nevertheless, the NASA Administrator's Fellowship Program offers a breakthrough in the non-interactive type situation comprised of highly skilled academicians and NASA professionals. The feeling of isolation of the scientists and engineers working in NASA and the HBCU/MI STEM faculty allows mutual exposure for identical goal oriented individuals. This program allows conveniently relocating at respective places for the selected fellows.

There is a set of multi-fold requirements to qualify for the NASA Administrator's Fellowship Program. There is a minor difference in requirements between the STEM faculty and the NASA employee. The program allows opportunity to associate at a NASA center of the faculty fellow's choice provided closest match in the research arena.

1. NAFP for the HBCU/MI STEM Faculty

- U.S. citizenship;
- full time tenure-track or tenured;
- must hold a Ph.D. or Sc.D. or equivalent in a STEM field or have expertise in NASA-related field;
- must obtain closest match in the field of research for the choice of NASA center and obtain a letter of support;
- must be recommended by the Department Chair or Dean and the Institution President;
- must not serve as the Principal Investigator or Co-Principal Investigator of any NASA research grant during the fellowship tenure at a NASA center; and
- must return to the home institution in a teaching and/or research capacity for at least two years after the fellowship.

2. NAFP for the NASA Employee

- U.S. citizenship;
- must be career NASA employees at or above the GS-13 level;
- must hold a Master's degree in a STEM field;
- must obtain closest match in the field of research for the choice of HBCU/MI and obtain a letter of support;
- must be recommended by Center Director and Branch Chief or Directorate Head;
- must be willing to teach or conduct research at a minority institution; and
- must return to NASA in accordance with NASA's training policy.

The NASA Administrator's Fellowship Program is sponsored and supported by NASA. This program is monitored and regulated by the United Negro College Fund Special Programs Corporation (UNCFSPC). All communications with the fellow recipient as well as with the home institution on funding or financial issues are conducted by UNCFSPC.

The HBCU/MI faculty fellow remains on the payroll of the institution where they are employed. The fellowship provides with the fellow's current academic year salary and benefit for 12 months of the duration at a NASA center to the HBCU/MI institution. The fellows may receive an additional 55% of the host site per diem rate if it is necessary to relocate for participation. The fellowship does not assume relocation expenses for more than 350 pounds of unaccompanied baggage. Professional travel associated with the fellowship is provided under the program grant and is regulated by the US Government travel rules.

The NASA employee fellow retains current salary and status. The fellows may receive an additional 55% of the host site per diem rate if it is necessary to relocate for participation in the fellowship program. The fellowship does not assume relocation expenses for more than 350 pounds of unaccompanied baggage. Professional travel associated with the fellowship is provided under the program grant and is regulated by US Government travel rules.

The benefit of the NASA Administrator's Fellowship Program provides a two-way traffic. Thus, it extends to both NASA and HBCU/MI.

### **1. STEM Faculty at the HBCU/MI**

The faculty fellows at the end of the successful fellowship duration are eligible to conduct NASA-related research at the home institution by submitting a proposal for a NAFP Research Award. This award to the fellow's home institution provides support for the faculty fellow to continue NASA related research. Other visible benefits accounted as:

- i. access to NASA's internal information via progress in technology;
- ii. understanding NASA's technical capabilities and limitations in research arena;
- iii. opportunity to the formation of partnership and teaming;
- iv. enhancement in the scope of research activities and technological horizon; and
- v. attendance of professional meetings/conferences/symposia and workshops.

### **2. NASA Employee**

NASA employees carry some sort of most current science and engineering technology to the HBCU/MI. The interaction of ideas and experiences enable NASA to expand its working horizon via relationships and understanding about how fruitfully to communicate and disseminate information on emerging science and technologies to the HBCU/MI.

By participating in the exchange of developmental activities NASA employees also enhance their personal technical and management skills assisting NASA in satisfying its future scientific and technological goals. A great strength of the

program lies in the flexibility of fellows to design individualized programs to strengthen weaknesses or branch out into other areas.

Above all the NASA employee is exposed to the teaching experience and interactions with the students from both graduate and undergraduate levels. Also mentoring and supervising students provide a unique opportunity in realizing the nature of the future work force. Professional workshops and attending meetings/conferences/symposia further aid in absorbing state-of-the-art knowledge.

### **3. Benefits to the Students**

The faculty associates with the students in the classroom lectures and in the laboratory sessions. As part of these regular responsibilities research activities are performed by both the faculty and the students via laboratory operations with state-of-the-art innovations. Students constantly gain from such activities for their advanced degrees. The NASA Administrator's Fellowship Program allows opportunity for the students to interact with the NASA Employees. Upon returning to the home institution the faculty gets opportunity to utilize students in research activities related to the NASA's interest. Thus, students are benefited via research publications and advanced knowledge.

### **Program Flexibility**

The NASA Administrator's Fellowship Program allows flexibility on the starting date. This is a conducive to the individual faculty's schedule to return to the institution on the anticipated date upon completion of the fellowship at a NASA center.

### **Results and Outcomes**

#### **1. Management and Leadership**

Management and leadership skills are developed via individual standing on the project(s) and exercising necessary freedom of work ethics. Flexible schedule of working is a great advantage for the fellows. Often the fellows take advantage of enjoying working during the weekends without hesitation. The gathering of the fellows administered by the UNCFSPC gives an opportunity to know each other and may lead to future collaborations. This expansion of horizon elevates individual skills via enhancing communication.

Attending and presenting research findings/results in the national meetings/conferences/symposia allows exposure at the national level. Attending workshops on various topics gives the latitude of learning unknown things. Within

NASA premises attending group meetings and team meetings beside divisional meetings give a wide variety of presentations offered by the NASA employees and contractors for the faculty fellows. The NASA employees participate in a variety of institutional meetings concerning student and curricula issues. Often these curricula are related to the accreditation and continued enrollment related. They can play a role by giving input concerning the state-of-the-art technological aspects of the curricula for the students who will be the potential employee in the government institutions and private sectors.

## 2. Research and State-of-the-art Technology

A large portion of the time is spent on the research activities. Periodic (weekly or monthly or quarterly) report to the team or group and divisional members allows updating the progress of the work. Mutual discussion via internal meetings is conducive to the project advancement. Participants/fellows have many opportunities to present their research findings/results in national meetings/conferences/symposia as well as in the research journals. Figures 1 and 2 depict the style of benefits of the NASA Administrator’s Fellowship Program.

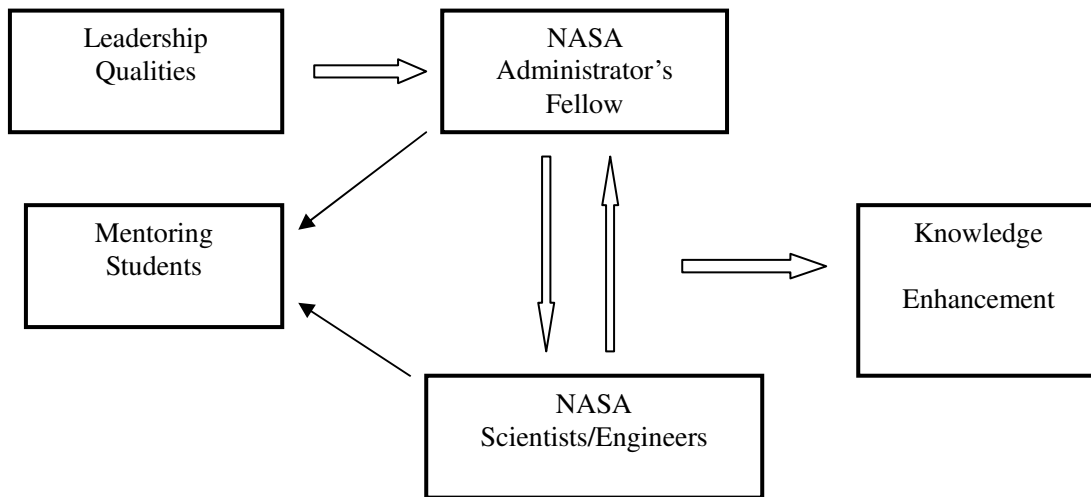


Figure 1. NASA Administrator’s Fellowship Program (NAFP) offers interactions with the NASA scientists/engineers and the HBCU/MI students besides enhancing personal leadership qualities.

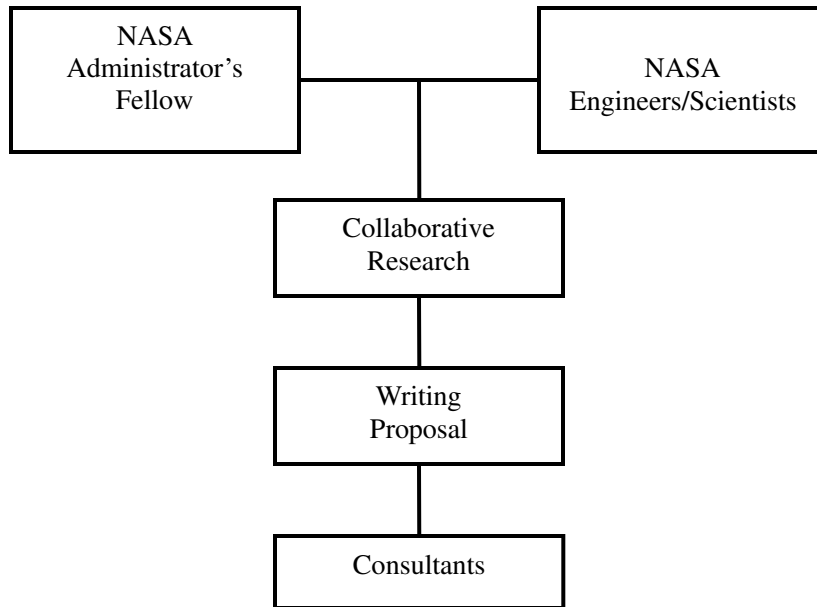


Figure 2. Enhancement of research activities between the NASA Administrator's Fellows and the NASA scientists/engineers.

### Viewpoints From Alabama A & M University

Alabama A & M University (AAMU) is a *land grant* HBCU Institution, established in 1890's to serve the needs of the minority population of the State of Alabama. During the 1970's, the University entered into a lawsuit to acquire necessary funds to carry out its land-grant mission. This University has expanded with engineering programs that earned ABET accreditation in 2000. The faculty members of AAMU are highly qualified and engaged in student-oriented research activities. The graduate program in science, engineering and agriculture allows superb hands-on training facilities of the students.

First time AAMU participated in the program was during 2005-2006 academic year with one faculty. Since then the program followed with two faculty fellows in 2006-2007 academic year. In the current 2007-2008 academic year one faculty fellow received this opportunity.

As a part of the experience of the AAMU faculty the following narration gives some beneficial ideas about the fellows. In the Cohort 10 fellowship program, participants attended 4 Leadership and professional development training workshops called pillars. The first pillar was entitled "Leadership Development." The second pillar of this professional development was on "Strategic Management" and this workshop included interactive training in project



management, time management, team management as well as intellectual property and patents. The third pillar was the training workshop and during this workshop plenty of useful information was discussed on how to locate funding opportunities and proposal development aspects at the Universities and academic institutions. This was very fruitful and rewarding learning experience for the participants. The fourth pillar was entitled “STEM Policy and External Relations” arranged by NAFSPC Institute of Advancement at NASA Ames Research Center, San Jose, California. This workshop was designed to identify and develop the Science Technology Engineering and Mathematics (STEM) education policy and External Relations necessary in today’s global, and research environment. This was an interactive workshop that provided useful tools for academic and professional environments. Best practices and proper protocols in various situations for obtaining institutional support were discussed.

### **Acknowledgments**

The authors thank the NASA Administrator’s Fellowship Program Office (MAA – Cohort 11, MDA – Cohort 10, BGP – Cohort 6) and NASA-MSFC for providing the opportunity to present the benefit of NAFP. One of the authors (AKB) assisted other authors in acquiring necessary information and giving suggestions.