Graduate Research Opportunities Worldwide (GROW) program

Handbook for U.S. Students

2017-18

Government of India

Science and Engineering Research Board
Ministry of Science and Technology
Govt. of India

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1. INTRODUCTION

The **Graduate Research Opportunities Worldwide (GROW) program** is a partnership between the *Science and Engineering Research Board (SERB)*, Department of Science and Technology (DST), Govt. of India and the *National Science Foundation (NSF)*, U.S.A. to provide NSF Graduate Research Fellows with opportunities to enhance their professional development through research collaborations at top-caliber science and engineering research sites in India. The program is being administered in India by the binational **Indo-U.S. Science and Technology Forum** (IUSSTF).

2. PROGRAM PARTNERS

2.1 Science and Engineering Research Board (SERB) **www.serb.gov.in**

One of the most notable developments in the S&T sector in the XI Plan has been the setting up of the Science and Engineering Research Board (SERB) through an Act of Parliament, viz. the Science and Engineering Research Board Act, 2008. Promoting basic research in Science and Engineering and to provide financial assistance to persons engaged in such research, academic institutions, research and development laboratories, industrial concerns and other agencies for such research and for matters connected therewith or incidental thereto is the primary and distinctive mandate of the Board. SERB aims to build up best management systems which would match the best global practices in the area of promotion and funding of basic research.

2.2 Indo-U.S. Science and Technology Forum (IUSSTF) **www.iusstf.org**

The Indo-U.S. Science and Technology Forum is an autonomous society that has been established under an agreement between the Governments of India and the United States of America on March 21, 2000 with a mandate to promote and catalyze Indo-U.S. bilateral collaborations in science, technology, engineering and biomedical research through substantive interactions between academia, industry and governmental agencies of the two countries. IUSSTF supports innovative programs aimed to foster scientific excellence through collaborations and partnerships by capitalizing on the scientific and technological synergy of the two nations. IUSSTF programs stimulate interactions that have a strong potential for generating follow-on activities and building long term Indo-American science and technology relationships. Amongst other programs, IUSSTF promotes and nurtures contacts between young and mid-career scientists and technologists through visitation and exchange programs for researchers and students. IUSSTF also promotes public-private partnership aimed at developing techno-entrepreneurship.

2.3 National Science Foundation www.nsf.gov

The National Science Foundation (NSF) is an independent federal agency created by Congress in 1950 "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense..." With an annual budget of about $7.0 billion, NSF is the funding source for approximately 20% of all federally supported basic research conducted by America's colleges and universities. In many fields such as mathematics, computer science and the social sciences, NSF is the major source of federal backing. NSF's goals - discovery, learning, research infrastructure and stewardship - provide an integrated strategy to advance the frontiers of knowledge, cultivate a world-class, broadly inclusive science and engineering workforce and expand the scientific literacy of all citizens, build the nation's research capability through investments in advanced instrumentation and facilities, and support excellence in science and engineering research and education through a capable and responsive organization.

3. OBJECTIVES OF THE PROGRAM

The broad objectives of the GROW program are to:
- promote research and capacity building in frontline areas of science and technology;
- pave way for the next generation scientists and technologists from the United States to interact with their Indian peers, thus helping to build long-term R&D linkages and collaborations; and,
- bring talented American students to research laboratories and academic institutions in India to build a deeper appreciation of the culture of innovation and long-standing tradition of scientific enquiry in India.

4. ELIGIBILITY

- Applicants should have completed at least one year of their graduate program at the time of application.
- Applicants must be enrolled at U.S. institutions, making satisfactory progress towards their degrees, and have fulfilled all GRFP reporting requirements.
- Open to MS - and Ph.D. seeking Fellows.

Note: *Students would be short-listed by the National Science Foundation, following which the list would be shared with the Indian Partners.*

5. APPLICATION

For information about the **Application Guidelines** and access to the **Application Format**, please visit http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504876

6. IDENTIFYING THE HOST INSTITUTE AND PLANNING RESEARCH

It is recommended that each U.S. student identifies a researcher in a research institution in India as a host. You may refer to the list of suggested institutions provided at http://www.iusstf.org/cms/newsimages/file/Graduate_Resh_opp/List-of-Indian-Institutions-for-the-GROW-Program.pdf. *However, please note that the list of institutions on the website is only an indicative list. Based on your area of interest, you could identify any institution(s) in India beyond this list and go ahead and make contact with them.* If you are selected for the program, we would get in touch with the institution directly to work out the best possible arrangements. Please remember that host researchers or institutions are not paid to host you and therefore your technical contributions to their program will be most appreciated.

6.1 How to find your host institution and researcher in India?

First, you need to talk to your research advisors or colleagues in your home institutions, who are active in the research areas of your interests. Many of them have contacts in India. You may also check recent journal papers or conference proceeding papers in the areas of your interests. You can identify Indian institutions and researchers from published papers. The GROW web-page contains a list of some potential host institutions in India. If you find any institutions of your interest from the list, you may contact them to identify potential host researchers. If you are interested in visiting an institute that is not on the list of suggested research institutes, please contact IUSSTF for help in connecting with the institute.

6.2 What to discuss with your host researcher in India?

In order to make the best possible use of your time in India, you are encouraged to make an effort both to create a research plan and to discuss its viability with your host scientist before departing to India. It is well worth the time and effort. U.S. students are encouraged to give presentations to and/or exchange ideas with Indian researchers (not limited to host researchers and colleagues in host institutions) soon after they arrive. Your presentation will help introduce not only your research, but also your home university in the United States. Students are also encouraged to establish both personal and professional connections with Indian research institutions and researchers and actively participate in laboratory and field work, as well as academic seminars held in India.

6.3 Research Plan

With your host researcher's agreement you may choose to continue your on-going research work or you may choose to work on their on-going or new research project. To make your visit to India productive in research, you may want to do the following:

- Join one of the on-going projects in your host researcher's laboratory.
- Read their publications and understand their methods and approaches.
- Decide on the scope and weekly schedule of your work, consulting with your host researcher before you arrive in India.

6.4 Facilities

While discussing your research plan, you should check with the host researcher to confirm that equipment, facilities, or materials required for your research will be available to you during your visit. You should ask your host to determine how you can access your email during your stay and how to gain access to the library and other facilities at the host institution. You should also ask for information about other possible professional visits during your stay and housing arrangements.

6.5 How to set up other professional visits?

The GROW Program encourages participants to visit laboratories outside of their host laboratory both to gain a broader understanding of India's scientific community and to create new contacts for future research collaboration. The main resources for developing contacts in India are:

- Your advisor, professors, and colleagues in the United States: Consult with your U.S. advisor and/or other appropriate individuals before you leave home and develop a list of researchers you would like to meet while in India. Letters of introduction provided by your U.S.-based advisor are extremely useful in setting up research visits with researchers other than your host.
- Your Indian host: Prior to your arrival, you should inform your host that you are interested in visiting other laboratories in India and ask them if they have suggestions for which researchers would be beneficial to meet. If the host responds to this request, you can then politely ask if they would be willing to make the necessary introductions and travel arrangements for you.
- Publication search: A publication search can help identify India researchers within your field. In this case, you might send or fax a polite letter that introduces yourself, explains your research and requests a visit while you are in India.
- IUSSTF: Can be a resource for you while in India if needed:
  Indo-U.S. Science and Technology Forum
  Fulbright House, 12 Hailey Road
  New Delhi -110001
  INDIA
  Phone: 91-11-42691 700/708
  http://www.iusstf.org

Email: nbopana@indousstf.org **Dr. Nishritha Bopana**, Principal Science Officer
Email: piyer@indousstf.org **Ms. Pushpa Iyer**, Associate Program Officer

6.6 Sightseeing/field visits outside host cities
All students are required to report to and get the permission from their host researchers and inform IUSSTF for sightseeing and/or field visits outside host cities. Students should also inform their parent University in the U.S. and NSF if they get permission and travel outside their host cities. The permission does not mean that the host institution or IUSSTF has any liability for personal injury or property damage during student's stay outside host cities.

7. TRAVEL AND STAY

7.1 Passport and Visa
You will need a valid passport with at least six (6) months of remaining validity for travel to India. For U.S. passports, application instructions and forms are available at the State Department Web site: http://travel.state.gov/). You can request expedited processing with an additional fee. An applicant who was born in India is required to submit his/her Indian passport or last foreign passport with an Indian visa when he or she applies for an Indian visa with a new foreign passport.

GROW Scholars to India are required to obtain a 'Research visa' for India. For guidelines and forms, see https://www.in.ckgs.us/visa/research-visa Validity of the visa would coincide with the research period. Please note the visa is valid beginning on the day it is issued. So a 6 Month visa issued on January 1 would be valid until June 30. You must enter India within 4 weeks of the visa issue date. Applicants are requested to apply at least six weeks before their date of departure to India.

The visa application form will request for multiple references in India. Indian host and IUSSTF will provide letters to the Consul General that can be used for visa applications. The invitation letter from IUSSTF will state specific dates for your stay in India. Any other country visits you wish to do after that will have to be done at your own expense. For example, if you wish to visit Nepal at the end of the program and then fly out of New Delhi for the return to the US you'll need a multi entry visa.

7.2 International Air Travel
  - Airfare would be provided by NSF.
  - For booking your tickets online, you may consider browsing travel websites offering competitive process. However please note per NSF, under the terms of the Fly

America Act, international air travel must adhere to requirements to use U.S. flag air carriers [see NSF Award and Administration Guide, Chapter VI, Subsection G, 1 (b-c); http://www.nsf.gov/pubs/policydocs/pappguide/nsf14001/aag_6.jsp#VIG1]. Travel that fails to comply with the Fly America Act cannot be reimbursed with federal funds.

7.3 Living Allowance in India
For the duration of your fellowship in India you will receive a monthly living allowance in INR from IUSSTF which is expected to cover meals, transportation, and incidental expenses.

You are advised to bring with you about U.S. $500 to cover extra expenses not supported by IUSSTF. Money exchange is available in all major cities across India. Remember that the exchange rate offered by hotels, bank branches, shops (if they accept foreign exchange) in India may vary.

7.4 Housing Arrangements
IUSSTF will arrange your housing at the host institution's guest house. Housing for host institutions where guest house is unavailable, will be handled by IUSSTF on a case by case basis.

7.5 Insurance
Participants are required to have health/medical insurance during their stay in India. If current insurance does not cover their medical needs abroad, they are responsible for obtaining their own health/medical insurance to cover their stay in India. Participants will be required to provide information on their health insurance carrier and the health insurance number upon their enrollment in the program.

7.6 Business Cards
It is an important practice in India to offer your business card when meeting someone for the first time. As a GROW Fellow, it will be useful for you to have your own business card. Your business card should include your name, title, university address, phone/fax number and email address in the United States.

7.7 Mobile Phones
You may want to arrange for mobile phone service during your stay in India. Mobile SIM card may be purchased and prepaid service arranged through companies such as Airtel, Vodafone, Reliance, BSNL. Your host researcher can direct you to the local mobile service provider's office of one of these companies after your arrival at your research site.

7.8 Health and Safety

For your general health, consider the following, as appropriate:

- If you wear eyeglasses or contact lenses, bring an extra pair of glasses or contact lenses with you for backup. You may also wish to bring a copy of your corrective lens prescription in the event you must have glasses made. Don't count on finding your specific brands of eye care products overseas--take them with you.
- If you take prescription medications regularly, and will be traveling with prescription drugs, bring a signed script or letter from your physician indicating your medical need(s) for the drug(s) and identify the drug(s) you will possess while traveling. If you require insulin and syringes, or have allergies and require epinephrine pens, you should look into the requirements for international travel with these items.
- Please consult your personal health care provider about your trip (destination and time abroad). Ask your health provider to review your vaccination record and any other medical needs you might have. You should do this at least 2 weeks prior to departure.
- The U.S. Government's Centers for Disease Control and Prevention (CDC) maintain a traveler's Web site with health information and travel advisories; the URL is http://www.cdc.gov/travel/
- A comprehensive set of tips is available at:
  https://www.tsa.gov/travel/travel-tips
- You are also encouraged to sign up for the U.S. Department of State's free **Smart Traveler Enrollment Program** to receive the latest travel updates and information that can help you stay informed, stay connected and stay safe, available at: https://step.state.gov/step/

8. POINTS OF CONTACT AND REPORTING MECHANISM

It is important to keep NSF and IUSSTF apprised of any changes or requests in your plans.
If there are problems, please get in touch with the following *POINT OF CONTACT*:

Jong-on Hahm
National Science Foundation
E-mail: jhahm@nsf.gov

Nishritha Bopana
Principal Science Officer
Indo-U.S. Science and Technology Forum
E-mail: nbopana@indousstf.org; internship@indousstf.org
Phone: +91-11-42691700

R. Varadarajan
Controller
Indo-U.S. Science and Technology Forum
E-mail: varada@ondousstf.org
Phone: +91-11- 23321553 & 42691702

Pushpa Iyer
Associate Program Officer
Indo-U.S. Science and Technology Forum
Email: piyer@indousstf.org
Phone: +91-11- 42691713
Please ensure to mark copies to your Indian host and U.S. advisor.

IUSSTF Report

All participants are requested to submit a report on research work carried out during the program to their host professors and **Ms. Pushpa Iyer**, IUSSTF (piyer@indousstf.org) within 3 weeks of the completion of the program.

9. OTHER INFORMATION

1. The fellowship will not be given to any participants if:
    (a) a false statement is found in the application documents.
    (b) an applicant's participation is cancelled by the host location.

2. You are strongly encouraged to keep your host researchers/advisors advised of progress in your application status and build mutual expectations about your research plan.

10. USEFUL WEBSITES

- Department of Science and Technology (DST) New Delhi www.dst.gov.in
- Science and Engineering Research Board www.serb.gov.in
- Indo-U.S. Science and Technology Forum (IUSSTF) http://www.iusstf.org
- U.S. Embassy, New Delhi, India https://in.usembassy.gov/
- Indian Embassy, Washington D.C., U.S. http://www.indianembassy.org/
- Consulate General of India in New York, U.S. http://www.indiacgny.org/
  (Consular Jurisdiction: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Puerto Rico, Rhode Island, Vermont, Virgin Islands)
- Consulate General of India in Houston, U.S. http://www.cgihouston.org/
  (Consular Jurisdiction: Alabama, Arkansas, Florida, Georgia, Kansas, Louisiana, Mississippi, Oklahoma, Texas)

- Consulate General of India in San Francisco, U.S. http://www.cgisf.org/
  (Consular Jurisdiction: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nebraska, New Mexico, Nevada, Oregon, Utah, Washington, Wyoming)
- Consulate General of India in Chicago, U.S. http://www.indianconsulate.com/
  (Consular Jurisdiction: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, North Dakota, South Dakota, Wisconsin)
- Indira Gandhi International Airport, New Delhi. India
  http://www.newdelhiairport.in/traveller.aspx
- Bengaluru International Airport, Bengaluru, India
  http://www.bengaluruairport.com/
- Mumbai International Airport, Mumbai, India http://www.csia.in/
- National Portal on India: http://india.gov.in
- India Map: http://www.mapsofindia.com/
- India Tourism: https://incredibleindia.org/
- Delhi Tourism: http://delhitourism.nic.in/delhitourism/index.jsp
- Times of India: http://timesofindia.indiatimes.com/
  http://epaper.timesofindia.com/epaperinterstitial.html
- The Hindu: http://www.thehindu.com/
- Hindustan Times:
  http://paper.hindustantimes.com/epaper/viewer.aspx
  http://www.hindustantimes.com/

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