



National Science Foundation  
4201 Wilson Boulevard  
Arlington, Virginia 22230

Title: The Division of Electrical, Communications and Cyber Systems (ECCS)  
Program Director Employment Opportunities in Microwave Photonics

Dear Colleague Letter  
March 4, 2008

Dear Colleagues,

The Division of Electrical, Communications and Cyber Systems (ECCS) announce a nationwide search for a senior-level engineering researcher to serve as Program Director for the microwave photonics and high-frequency electromagnetic devices area within the Electronics, Photonics and Device Technologies (EPDT) program, at the National Science Foundation (NSF). The desired starting date for the position is August 1, 2008.

The ECCS Division addresses fundamental research issues underlying component and device technologies, power and energy, controls, computation, networks, communications and cyber technologies, and supports the integration and networking of intelligent systems principles at the nano, micro and macro scales for a variety of application domains in healthcare, homeland security, disaster mitigation, energy, telecommunications, environment, transportation, manufacturing, and other systems-related areas. ECCS envisions a research community that will address major technological challenges for the next generation of devices and systems due to convergence of technologies and increased emphasis on interdisciplinary research. ECCS has a continuing goal to integrate education into its programs to ensure education of a diverse workforce in the 21st century that will continue innovative advances for the rapid development of emerging technologies as drivers of the global economy.

The ECCS Division is organized around three programs:

- Electronics, Photonics and Device Technologies (EPDT)
- Power, Controls and Adaptive Networks (PCAN)
- Integrative, Hybrid and Complex Systems (IHCS)

The management of these programs involves a team approach by Program Directors of the ECCS Division, to reflect the increasing convergence of traditional disciplinary topics and the need for interdisciplinary approaches to new problem areas. In addition to these program areas, ECCS sponsors workshops on areas of frontier and innovative technologies, which often lead to

special program initiatives. Please visit the ECCS web site at <http://www.nsf.gov/div/index.jsp?div=ECCS>.

The Program Director opening is in the area of microwave photonics and super-to-extremely high frequency electromagnetic devices. Microwave photonics is an inter-disciplinary area that studies the interaction between microwave and optical signals for microwave/millimeter-wave signal generation, distribution, control and processing by means of photonics. Microwave photonics for applications in telecommunications and radar demand ever-increasing speed, bandwidth and dynamic range. Next generation signal processing for applications in communications, millimeter wave radio, and broadband video, require devices that are inherently small size, light weight, and tunable with low power consumption capability. Digital electronics is currently limited by switching speeds and sampling rates; however, microwave photonics offers a promising alternative for signal processing with unique ultra wideband and high-frequency capabilities for applications such as spectrum analysis, time delay, frequency conversion, signal synthesis, filtering, channeling, and data conversion. This new Program Director will develop the program on next-generation super-to-extremely high frequency electromagnetic devices and components, including spectrometers, terahertz devices, microwave instruments, sub-wavelength imagers, monolithic microwave integrated circuits (MMIC), microwave sources and detectors, antennas, mixers and amplifiers, among others, for integration at microwave, optical and terahertz frequencies (100-3000GHz).

Program Director positions at the National Science Foundation provide a challenging experience and an excellent opportunity to encourage and support engineering research and education. The individual will work with other Program Directors in formulating research strategies, developing cooperation among government, academia and industry, fostering outreach to underrepresented groups, and providing leadership within NSF and the research community. The position requires a Ph.D. with a minimum of six years of academic, government or industrial experience.

The Program Director position recruited under this announcement may be filled under the following appointment options:

**Intergovernmental Personnel Act (IPA) Assignment.** Individuals eligible for an IPA assignment with a Federal agency include employees of state and local government agencies or institutions of higher education, Indian tribal governments, and other eligible organizations in instances where such assignments would be of mutual benefit to the organizations involved. The individual remains an employee of the home institution and NSF provides funding toward the assignee's salary and benefits. Initial IPA assignments are made for a one-year period and may be extended by mutual agreement for up to two additional years.

**Visiting Scientist Engineering Educator.** Appointment to this position will be made under the Excepted Authority of the NSF Act. A Visiting Scientist is on non-paid leave status from the

home institution and appointed to NSF's payroll as a Federal employee. NSF withholds Social Security taxes and pays the home institution's contributions to maintain retirement and fringe benefits (i.e. health benefits and life insurance), either directly to the home institution or to the carrier. Appointments are usually made for up to one year and may be extended by mutual agreement for up to an additional year.

**Temporary Excepted Service Appointment.** Appointment to this position will be made under the Excepted Authority of the NSF Act. Candidates who do not have civil service status or reinstatement eligibility will not obtain civil service status if selected. Candidates currently in the competitive service will be required to waive competitive civil service rights if selected. Usual civil service benefits (retirement, health benefits, life insurance) are applicable for appointments of more than one year. Temporary appointment may not exceed three years. For additional information on NSF's rotational programs, please see "Programs for Scientists, Engineers, and Educators" on the NSF website at [http://www.nsf.gov/about/career\\_opps](http://www.nsf.gov/about/career_opps).

Should you or your colleagues be interested in this position, or wish to nominate suitable candidates, please contact the search committee coordinator, Dr. Eric Johnson, Search Committee Coordinator ([egjohnso@nsf.gov](mailto:egjohnso@nsf.gov)), and forward curriculum vitae to him by April 1, 2008. Applications will be reviewed immediately after this date, though the position will remain open until filled. For questions or further information, please feel free to contact:

Dr. Eric Johnson, Search Committee Coordinator  
Dr. Lawrence Goldberg, Search Committee Co-Coordinator  
The Division of Electrical, Communications and Cyber Systems  
National Science Foundation  
4201 Wilson Blvd., Arlington, VA 22230  
Phone: (703)-292 8339  
FAX: (703)-292 9147  
Email: [egjohnso@nsf.gov](mailto:egjohnso@nsf.gov)

Dr. Usha Varshney, Director  
The Division of Electrical, Communications and Cyber Systems  
National Science Foundation  
4201 Wilson Blvd, Arlington, VA 22230  
Phone: (703)-292 8339  
FAX: (703)-292 9147  
Email: [uvarshne@nsf.gov](mailto:uvarshne@nsf.gov)

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