



NATIONAL SCIENCE FOUNDATION  
4201 WILSON BOULEVARD  
ARLINGTON, VA 22230

Title: Division of Civil and Mechanical Systems (CMS)  
Employment Opportunity--Dear Colleague Letter

Date: March 1, 2005

Dear Colleague:

The Division of Civil and Mechanical Systems (CMS) announces a nationwide search for a Program Director for the **Materials Design and Surface Engineering** (MDSE) Program at the National Science Foundation (NSF). This position is open until filled.

The performance of civil and mechanical systems is ultimately limited by the properties of materials used. Properties of a given material are controlled not only by its composition, but also by its microstructure. Microstructure, in turn, is determined by processing or synthesis methods. The linkage between processing/synthesis, microstructure and property provides the logical route for designing and developing engineering materials with improved performance, such as high strength-to-weight alloys, protective coatings and surface treatments for service under extreme conditions. For mechanical systems or components that are subjected to relative motion (e.g., power train systems), tribological properties of surfaces and interfaces dominate the overall performance, rather than bulk properties. In fact, various studies indicate that up to 6% GDP is lost to friction (lower energy efficiency), wear and catastrophic failure because of inadequate understanding of tribological and surface engineering principles. The Materials Design and Surface Engineering (MDSE) program supports research (experiment and theory) in understanding the linkage across all length scales between processing/synthesis, microstructure and properties for engineering materials, which include mechanical, fatigue, creep and other properties against deterioration; design and development of novel materials; tribological phenomena (friction, wear, lubrication and adhesion); and surface engineering for enhanced friction, wear and corrosion performance. Please visit our web site at

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=13356&org=CMS](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13356&org=CMS)

Qualification requirements include a Ph.D. in the relevant discipline, plus six or more years of active research in the field, research administration and/or substantial managerial experience in academe, industry, or government. Also important are knowledge of the materials and surface engineering communities, ability to deal with both experiment and theory, and effective communication skills (written and oral). The appointee is expected to function effectively both within specific programs and in a team mode, contributing to and coordinating with organizations in the Engineering Directorate, across the Foundation, and with other Federal and State government agencies. Periodic assignments to leadership positions of inter-divisional, inter-directorate and inter-agency programs may be made. We are particularly interested in attracting women and under-represented minority candidates to these positions.

NSF Program Directors bear the primary responsibility for carrying out the Foundation's overall mission: to support innovative and merit-reviewed activities in basic research and education that contribute to the nation's technological strength, security, and welfare. To discharge this responsibility requires not only knowledge in the appropriate disciplines, but also a commitment to high standards, a considerable breadth

of interest and receptivity to new ideas, a strong sense of fairness, good judgment, and a high degree of personal integrity. The focus of this search is to identify a scholarly, mentoring and open-minded person to join the present diverse and intellectually integrated team in sharing Engineering Directorate's responsibilities within NSF's overall mission.

This position may be filled under one of the following appointment options:

- **Visiting Scientist Appointment.** Appointment to this position will be made under the Excepted Authority of the NSF Act. Visiting Scientists are on non-paid leave status from their home institution and appointed to NSF's payroll as Federal employees. 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 for an additional year by mutual agreement.
- **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. Initial assignments under IPA provisions may be made for a period up to two years, with a possible extension for up to an additional two-year period. 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.
- **Temporary Excepted Service Appointment (IPA).** 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, and life insurance) are applicable for appointments of more than one year. Temporary appointments may not exceed three years.

Applications and questions concerning this Program Director position should be directed to:

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QUALIFIED STAFF THAT REFLECTS THE DIVERSITY OF OUR NATION