



NATIONAL SCIENCE FOUNDATION
4201 Wilson Blvd.
Arlington, VA 22230

NSF 05-07

Dear Colleague:

All proposals received by the National Science Foundation are evaluated based on two criteria: intellectual merit and broader impacts. Most researchers understand what is meant by intellectual merit, namely that the research has to be innovative and advance the scientific frontiers. However what is meant by broader impacts is often misunderstood. This message is meant to clarify what is meant by broader impacts and how it is applied by Program Directors in making their decisions.

There are many ways to address the broader impact criterion, as demonstrated by the materials research community. These include training graduate and undergraduate students to be future professionals; presenting seminars; organizing workshops and symposia; designing new materials or new processing/fabrication routes to existing materials; exploring and exploiting novel phenomena; creating new materials of potential use in industrial, medical, or environmental applications; developing new devices and methodologies for national security; forming start-up companies for disseminating new technologies; writing scholarly review articles or articles describing research to non-specialist audiences; forging links to other scientific disciplines; sharing laboratory methods, instrumentation, software for data analysis, or samples of novel materials; devising safer laboratory procedures or more economical research practices; creating websites enhanced by engaging animations and movies; consulting with industrial and government colleagues; establishing collaborations with scientists from around the world; hosting students, teachers or other professionals, including those from under-served demographic groups; updating curriculum by writing texts or developing new classroom instructional materials and laboratory experiments; working with science centers on new exhibits; assisting journalists with their stories on technical topics; and developing new art forms for communicating science to wider audiences.

In essence, our community demonstrates a creativity in its broader impact activities that is fully commensurate with its creativity in its research activities. Broader impact activities are a critical element of the long-term health, vitality, and infrastructure of our discipline. They contribute to our professional development and that of our co-workers, to wide dissemination of our research breakthroughs, to recruitment of our future workforce, and to effective communication with non-specialist audiences. Collectively, the broader impact represents a great success story for the materials research and education community that should be widely shared.

Although the above list of activities is not all-inclusive, we hope that this information provides helpful guidance. Feel free to contact me or other members of the Division of Materials Research if you would like to discuss the broader impacts associated with your project. Further information and general guidance regarding broader impacts can be found at <http://www.nsf.gov/pubs/2002/nsf022/bicexamples.pdf>.

Sincerely,

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