



National Science Foundation  
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## Dear Colleague Letter: Information on the Materials Engineering & Processing Program (MEP)

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Dear Colleagues:

Effective September 1, 2013, the [Materials Engineering and Processing Program \(MEP\) \(PD 13-8092\)](#) will be accepting proposals that address engineering principles as they relate to material processing and performance. This program replaces the Materials Processing and Manufacturing (MPM), Materials and Surface Engineering (MSE), and Structural Mechanics and Materials (SMM) programs. This new MEP program is effectively a merger and evolutionary advance of these three programs. The MPM, MSE and SMM programs will no longer be accepting new proposals<sup>1</sup>.

The Division of Civil, Mechanical, and Manufacturing Innovation (CMM) in Directorate for Engineering (ENG) of the National Science Foundation (NSF) created the Materials Engineering and Processing (MEP) program to support fundamental research addressing the interrelationship of materials processing, structure, properties and/or life-cycle performance for targeted applications. Processing and performance of all material systems are of interest. These include polymers, metals, ceramics, semiconductors, composites, and hybrids thereof. Research driven by scientific hypotheses are encouraged when suitable, and materials in bulk form or focus on special zones such as surfaces or interfaces that are to be used in structural and/or functional applications are appropriate for this program. Analytical, experimental, and numerical studies are supported and collaborative proposals with industry (i.e. Grant Opportunities for Academic Liaison with Industry (GOALI)) are encouraged.

The new program is effectively the merger of the MPM, MSE and SMM programs. Most research topics that had been appropriate for each of these programs will be appropriate for the MEP program. The division chose to create this larger program to allow researchers who propose research related to Materials Engineering to have one core program to which they submit proposals. Having this one larger program will enable more flexibility and responsiveness to new research ideas and NSF initiatives. CMMI will continue to work cooperatively with the other divisions in the Engineering directorate as well as the Division of Materials Research (DMR) to co-review and co-fund proposals that fit multiple programs. With this program and our Design of Engineered Material Systems program, the division will also continue to support the [Materials Genome Initiative for Global Competitiveness \(MGI\)](#).

The MEP program has been organized into three major thrust areas, each managed by one Program Director. Prospective PIs are encouraged to contact the cognizant program director listed below with questions related to the program.

- Functional Materials (Program Director, [Mary Toney](#), acting)<sup>2</sup> - materials that possess native properties and functions that can be controlled by external stimuli such as temperature, light, electric field, pH, etc. These include materials that exhibit properties such as electronic, magnetic, piezoelectric, ferroelectric, photovoltaic, chromogenic, shape memory, thermoelectric or self-healing, etc. in any type of material system.
- Structural Materials (Program Director, [Grace Hsuan](#)) - materials that, in service, bear mechanical load. Length scales from nano to meso to macro are of interest as are materials in the bulk or in special configuration such as thin film, foam, density gradient, etc. These include materials such

as metals, polymers, composites, biomaterials, ceramics, hybrids, cement, etc. Research that models the mechanical behavior of materials in the built environment is also considered. For civil infrastructure materials, the emphasis should be on the properties of structural components not the structure itself. Furthermore, proposals that focus on pavement performance (asphalt or concrete) are not in line with the goals of this program and may be subject to return without review.

- Materials Processing (Program Director, [Mary Toney](#)) - processes that convert material into useful form as either intermediate or final composition. These include processes such as extrusion, molding, casting, deposition, sintering, printing, etc. Proposed research should include the consideration of cost, performance, and feasibility of scale-up, as appropriate. Research that addresses multi-scale and/or multi-functional materials systems is encouraged as is research in support of environmentally-benign manufacturing. Additive manufacturing and laser processing research proposals will be considered in the [Manufacturing Machines and Equipment \(MME\)](#) program.

When submitting a proposal, the thrust area does not need to be identified; the proposal needs only be submitted to the MEP Program via FastLane or Grants.gov. After submission, the MEP management team will work together to group proposals for review. Each proposal will be then be assigned to a program director for managing the review process, award processing, reports, etc.

Future program updates will be communicated via the MEP program webpage.

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<sup>1</sup>Active awards in these archived programs will still be able to submit annual reports, notifications, supplements, etc.

<sup>2</sup>CMMI is recruiting a new program director for this position at this time.