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Office of the Vice President for Research

Subject: NSF Scalable Nanomanufacturing (SNM), NSF 14-544

Date: April 2, 2014

The National Science Foundation (NSF) announces a fourth year of a program on collaborative research and education in the area of scalable nanomanufacturing, including the long-term societal implications of the large-scale implementation of nanomanufacturing innovations. This program is in response to and is a component of the National Nanotechnology Initiative Signature Initiative: *Sustainable Nanomanufacturing - Creating the Industries of the Future* (<http://www.nano.gov/node/611>). **Although many nanofabrication techniques have demonstrated the ability to fabricate small quantities of nanomaterials, nanostructures and nanodevices for characterization and evaluation purposes, the emphasis of the scalable nanomanufacturing program is on research to overcome the key scientific and technological barriers that prevent the production of useful nanomaterials, nanostructures, devices and systems at an industrially relevant scale, reliably, and at low cost and within environmental, health and safety guidelines.** Competitive proposals will incorporate three elements in their research plans:

- A persuasive case that the nanomaterials, nanostructures, devices or systems to be produced have or are likely to have sufficient demand to justify eventual scale-up;
- A clearly identified set of research issues for science and engineering solutions that must be addressed to enable the production of high quality nano-enabled products at low cost; and
- A compelling research plan with clear research objectives and approaches to overcome the identified research issues.

The mode of support is Nanoscale Interdisciplinary Research Teams (NIRT).

Proposals submitted to this program should consider addressing aspects of the nanomanufacturing value chain:

- Novel scalable processes and techniques for large-area or continuous manufacturing of nano-scale structures and their assembly/integration into higher order systems;
- Fundamental scientific research in well-defined technical areas that are compellingly justified as approaches to overcome critical barriers to scale-up and integration; and
- Design principles for production systems leading to nanomanufacturing platforms; identification of metrology, instrumentation, standards and control methodologies needed for process control and to assess quality and yield.

Competitive proposals are expected to address the training and education of students in nanomanufacturing. While not required, the involvement of an industrial partner or partners is strongly encouraged and has the potential to significantly strengthen a proposal.

NSF expects to make 5 to 8 awards, in the range of \$250,000-\$375,000 per year for four years, depending on the scope of the work proposed with an anticipated start date of September 2014. More details can be found at http://www.nsf.gov/publications/pub_summ.jsp?WT.z_pims_id=13633&ods_key=nsf14544. The deadline for the full proposal to the agency is June 16, 2014.

This is a limited competition; each institution may submit no more than one (1) proposal on which it is the lead organization in response to this solicitation. (The same organization may be a collaborative partner in any number of other multi-organization group proposals in which it is not the lead.) Please submit your 3-page preproposal (plus budget and CV; all documents in a SINGLE PDF file, 11 point font) by NOON on Friday, April 25, 2014 to limited@unm.edu with the subject line indicating: NSF SNM 14-544 - your name. No late submissions will be considered. The pre-proposal should address the major points that will be included in the proposal narrative (including: a description of the project's potential for significant contributions to the advancement of nanomanufacturing; all proposals should clearly state what roadblocks to scale-up exist and what new approach or approaches will be investigated to overcome those obstacles; the scientific and technological barriers to commercialization, in terms of production rate, throughput, quality, reproducibility, yield and cost should be addressed in the proposal; a discussion of the integration of research and education; and a description of the planned collaborations including the projects' inter-disciplinarity). The narrative should be accompanied by a draft budget overview and an abbreviated PI CV. The scoring will be weighted as follows: proposal narrative (70%), draft budget overview (15%), and abbreviated PI CV (15%).

Should you have any questions please feel free to contact Susan De Los Santos (sdelossa@unm.edu or 277-0272) or Monica Fishel (mlfishel@unm.edu or 277-8114).

If you are affiliated with HSC, please contact Corey Ford at 272-6950 for more information.