

**Title: Project on the Assessment of 15 Nanotechnology Science and Engineering Centers' (NSECs): Outcomes and Impacts: Their Contribution to NNI Objectives and Goals**

**NSF Award Number: 0955089**

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**About the Project.** This project aims to provide detailed information and analysis of the outputs and outcomes of 15 of the NSF-funded Nanoscale Science and Engineering Centers (NSECs). The approach takes the goals of the NNI as its point of departure: (1) advance world-class nanotechnology R&D, (2) foster the transfer of new technologies into products for commercial and public benefit, (3) develop and sustain educational resources, a skilled workforce, and supporting infrastructure to advance nanotechnology, and (4) support responsible development of nanotechnology. The project will begin by establishing the outputs and outcomes of NSECs and their correspondence with the NNI strategic goals. NSECs address research problems that are too complex and multifaceted for individuals or small groups of researchers to tackle on their own by bringing together researchers with diverse expertise in partnership with other private and public sector organizations to address complex, interdisciplinary and educational challenges. NSF has asked Georgia Tech to develop analyses of publication-based relationships and detailed case studies to document the types of successes that have occurred in the NSECs. As a research project, the purpose is to inform program design rather than evaluate individual centers.

**Approach.** This project will use a mixed method, explanatory sequential design that begins with the use of publication, citation, personnel, funding and other available quantitative data for nano centers. This first phase will identify emergent patterns of co-authorship, citation, and productivity to detect potential collaboration, interdisciplinarity and diffusion in the field using bibliometric analysis of data extracted from the Science Citation Index of the Web of Science. In the second phase, we will conduct case studies of two to three centers that represent profiles emerging from the research production, co-authorship, citation, and interdisciplinary patterns on the science and technology content side of center activities, and business linkages for technology transfer and possible economic impacts. The case studies will involve site visits, interviews, and document review to help determine the meaning of the bibliometric findings for the assessment of center outcomes and impacts, and understand their role in the creation of new educational and business linkages for technology transfer or new ventures. The third phase will integrate quantitative and qualitative information.

**Anticipated Results.** This study will generate *empirical findings* on the outcomes and impacts of NSECs. These results will not only be a determination of what outcomes and impacts have occurred but also what mechanisms of the design and implementation of centers yield these results. They will show how nano research centers affect the dynamics of knowledge in an emerging field. Knowledge about research knowledge networking and the roles that different organizational structures are playing can inform efforts to speed research progress and commercial innovation.

**Information Requested.** The project team requests the following initial information from each center:

- Name of information and reporting specialist at each center
- Review of list and classification of center participants.

**Project Sponsor and Key Personnel.** The research is funded by a grant from the US National Science Foundation, award number 0955089. Final results are expected in the fall of 2010. The project is directed by Professor Juan Rogers, School of Public Policy Georgia Tech. Other key members of the Georgia Tech team are Dr. Jan Youtie, Professor Philip Shapira, and Emeritus Professor Alan Porter.

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