

**2008 PROPOSAL PACKAGE**

**APPLICATION to the  
NANOTECHNOLOGY INSTITUTE  
Technology Development**

**Core Grant program**

**Deadline: July 1, 2008**

## THE NANOTECHNOLOGY INSTITUTE 2008 PROPOSAL PACKAGE

**Funding Period and  
Deadline:**

August 1, 2008 – September 30, 2009  
Submission deadline: July 1, 2008, 5:00 PM Eastern Time

Renewal applications from existing Core Programs must have achieved the milestones projected in the original proposal. Renewal applications will be evaluated on a competitive basis with new applications.

**Size of Award:**

\$200,000.-\$600,000 per project.  
A total of \$1.4M is available in this fund.

**Eligibility:**

Interdisciplinary, multi-institutional teams of university researchers. All team members who receive funds must have Principal Investigator status at NTI-affiliated institutions.

**Criteria:**

These projects require demonstrating the progression of a technology towards commercialization, *i.e.*, products. They must show how the results will move the technology towards licensing or form the basis for a start-up company.

Evaluation of each proposal will be based on the extent to which the proposed effort involves some or all of the following criteria:

1. A mature nanotechnology with well-defined application(s)
2. A team with a successful track record of working together, including previous success in generation of IP and commercialization of technology.
3. A technology that clearly brings new capability where none exist.
4. Existing and potential industrial partners.
5. Goals and objectives that can be reached in approximately a one year time frame.
6. Applications that can be lead to manufacturable products using off the shelf manufacturing.
7. Commercial potential, such as patentability, licensing potential, or potential for leading to start-up ventures.
8. Technical soundness, feasibility, likelihood of success, availability of needed facilities and equipment.

The above criteria are all desirable, but it is not required that all of these be met.

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**Budgeting:** Funds may be used for supporting faculty, graduate students, and other research staff; materials and supplies; limited travel for justified purposes; benefits and indirect costs. Equipment cannot be purchased with these funds, but the leasing of equipment is allowed.

**Application Fee:** None

**Directions for Submission:** Submit one PDF file to:

**Linda White**, Sr. Program Administrator, BFTP/SEP  
[linda@sep.benfranklin.org](mailto:linda@sep.benfranklin.org)

**Review Selection:** All applications will be first reviewed by the NTI Operations Committee for eligibility, adherence to stated requirements, and overall appropriateness of the team and topic. Proposals meeting these criteria will be reviewed by external reviewers drawn from regional universities, industry, venture capital, and economic development organizations with demonstrated expertise in technology development and commercialization. As part of the review process, applicants may be asked to respond to questions from the reviewers or be invited to give an oral presentation to the committee.

**Questions:** If you have any questions, please check our website first for the most up-to-date and complete information:  
[www.nanotechinstitute.org](http://www.nanotechinstitute.org).

You may also call Linda White, Sr. Program Administrator, Ben Franklin Technology Partners/SEP or any member of the NTI Operating Committee (contact information listed below).

**Linda White**, Sr. Program Administrator, BFTP/SEP  
Building 100, Innovation Center,  
4801 S. Broad Street, Suite 200  
The Philadelphia Navy Yard  
Philadelphia, PA 19112  
Tel: 215-972-6700 x3226 Fax: 215-972-5588  
[linda@sep.benfranklin.org](mailto:linda@sep.benfranklin.org)

**Robert W. Carpick**, U. Penn Director, NTI  
Associate Professor, Dept. of Mechanical Engineering &  
Applied Mechanics  
University of Pennsylvania  
271 Towne Bldg, 220 S. 33rd St.,  
Philadelphia, PA 19104-6315

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Tel: 215-898-4608 Fax: 215-573-6334  
[carpick@seas.upenn.edu](mailto:carpick@seas.upenn.edu)

**Kambiz Pourrezaei**, Drexel U. Director, NTI  
Professor, School of Biomedical Engineering  
Drexel University  
3120-24 Market Street  
Philadelphia, PA 19104  
Tel: 215-895-2260 Fax: 215-895-1695  
[pourrezk@drexel.edu](mailto:pourrezk@drexel.edu)

NTI University Affiliates: CHOP, Drexel University, Fox Chase Cancer Center, Haverford College, Lankenau Institute for Medical Research, Millersville University, Thomas Jefferson University, University of Pennsylvania, University of the Sciences in Philadelphia, Temple University, Villanova University, Widener University

**Funding under this program is made possible by the Commonwealth of Pennsylvania under the Ben Franklin Technology Development Authority and the Nanotechnology Institute.**

## **I. Program Description**

### **A. Overview**

The Nanotechnology Institute (NTI) was formed in 2000 as a partnership among Ben Franklin Technology Partners of Southeastern Pennsylvania (BFTP/SEP), Drexel University and the University of Pennsylvania, to support regional economic development, connecting university assets in nanotechnology to industry in the region.

The mission of the NTI is to act as the catalyst for enterprise creation using nanotechnology as an enabler for the development of new products and processes; orchestrating the creation and efficient transfer of intellectual property from the universities into area companies and new businesses; helping to educate and build a skilled technical workforce, and organizing, communicating and marketing the assets of the region with a unified voice.

The Core Programs within the Technology Development fund support interdisciplinary, multi-institutional teams of university researchers engaged in translational research, *i.e.*, the scientific work required to develop a commercial or clinical application from a basic science discovery, within the broad domain of nanoscience and nanotechnology. Successful outcomes of this program will necessarily involve the demonstration of routes to commercially viable nanotechnology applications. Desired outcomes include not only high-impact, peer-reviewed technical publications, but also the generation of IP, licensing of this or pre-existing IP, sponsored research agreements or other partnerships with industrial partners, commercial products, and the formation of start-up companies.

### **B. Research Areas**

All areas within nanoscience/nanotechnology are eligible for consideration. Overall commercial potential, potential for licensing, leveraging of existing expertise and pre-existing IP at NTI institutions, and potential for economic impact in the southeast Pennsylvania region are considered advantageous.

## **II. Program Requirements**

### **A. Sub-Contracted Research**

If the grant application includes any sub-contracted services, a quote for the services from a qualified vendor must be provided with the grant application.

### **B. Intellectual Property**

All Faculty/Staff involved in the project must follow the patent policy in place within their individual university or research institution.

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**For grant applications involving academic/industry collaboration,**

the company retains complete ownership of all technology developed before the start of NTI funding, as well as any technology developed by its employees during the project. For new technology developed by the research institution, or collaboratively, by the company and the research institution, the NTI requires that the company negotiate an agreement with the university regarding ownership rights to any intellectual property developed by the university partner in servicing this contract prior to final funding approval. NTI will review and approve the IP agreement between the institution and the company.

### **III. Review Process**

The evaluation of grant applications is expected to be completed approximately four (4) weeks from the closing date. The time may vary slightly depending on the volume of applications.

**The NTI maintains the confidentiality of proposals.** The NTI staff and reviewers sign non-disclosure agreements with the NTI. NTI universities/faculty have existing confidentiality agreements in place with the NTI, as a condition for their participation. Proposals should include enough information for reviewers to make informed decisions on the merits of the proposed work. All proprietary information should be clearly marked.

All applications will be first reviewed by the NTI Operations Committee for eligibility, adherence to stated requirements, and overall appropriateness of the team and topic. Proposals meeting these criteria will be reviewed by external reviewers drawn from regional universities, industry, venture capital, and economic development organizations with demonstrated expertise in technology development and commercialization. As part of the review process, applicants may be asked to respond to questions from the reviewers or be invited to give an oral presentation to the committee.

### **IV. Post-Award Procedures**

#### **A. Funding Agreement**

The NTI will enter into a grant agreement with the awardees that will involve funds being contracted to each of the participating universities.

#### **B. Reporting**

Award recipients are required to submit a semi-annual progress report and a final project and expenditure report to the NTI at the conclusion of the project period. The final project report is a brief narrative description of the project accomplishments as per the milestones described in the proposal, and future project plans. The expenditure report requires an accounting for the expenditures of the awardee and any participating organizations or sub-contractees during the project.

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**C. Project Tracking & Management**

The NTI will actively monitor the projects during the funding period. NTI Operations Committee members are available for advice and consultation. Awardees are encouraged to contact NTI Operations Committee members as needed throughout the entire project period.

The Commonwealth of Pennsylvania requires an annual performance survey of NTI funded projects. The survey includes information on the number of jobs created, the number of products commercialized, annual revenues, and the amount of private dollars raised. Awardees are required to keep accurate and verifiable records which can be submitted annually.

# Core Funding Program Application

## TABLE OF CONTENTS

**Your proposal should include the following elements if applicable:**

I. Proposal Cover Pages

II. Non-Confidential Executive Summary

III. Technical Description

- A. Problem Statement
- B. Program of Work
- C. Contractual Agreements
- D. References
- E. Biographical Sketches
- F. Current and Pending Support
- G. Facilities, Equipment and Other Resources

IV. Budget

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**PROPOSAL COVER PAGES**

PROPOSAL TITLE: \_\_\_\_\_

\_\_\_\_\_

Principal Investigator: \_\_\_\_\_ Title: \_\_\_\_\_

University/Institution: \_\_\_\_\_

Department: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

Street Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

E-Mail: \_\_\_\_\_

Web Site: \_\_\_\_\_

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Co-Investigators (must have PI status at NTI-affiliated institutions)

Investigator: \_\_\_\_\_ Title: \_\_\_\_\_

University/Institution: \_\_\_\_\_

Department: \_\_\_\_\_

Investigator: \_\_\_\_\_ Title: \_\_\_\_\_

University/Institution: \_\_\_\_\_

Department: \_\_\_\_\_

Investigator: \_\_\_\_\_ Title: \_\_\_\_\_

University/Institution: \_\_\_\_\_

Department: \_\_\_\_\_

Attach additional sheets if necessary.

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Intellectual Property: Provide title, patent or application numbers (include indication of provisional status), docket numbers, and titles of all existing Intellectual Property assets involved in this application.

Patent Title \_\_\_\_\_

Patent/Provisional Application Number \_\_\_\_\_

Docket Number \_\_\_\_\_

Patent Owner (must be a NTI member institution) \_\_\_\_\_

If a for-profit company is involved, is there a license or option to license in place?

Yes No

Attach additional sheets if necessary.

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Amount Requested from NTI (max. \$600,000): \$\_\_\_\_\_\*

\*Please make sure this amount matches that listed on your project budget sheet.

Disclaimer: The submission of the proposal shall not create any rights on behalf of the submitter, contractual or otherwise. The submission of a proposal does not constitute or create any legally binding or enforceable agreement or commitment on the part of NTI other than to maintain the confidentiality of proposal information identified as confidential. No past or future action, or course of conduct by NTI, will give rise to or serve as a basis for any legally enforceable duties or obligations on NTI other than to maintain the confidentiality of proposal information identified as confidential.

Signature of Authorized Official at Applicant University/Institution:

Signature:\_\_\_\_\_ Date:\_\_\_\_\_

Type or Print Name and Title:\_\_\_\_\_

**Funding under this program is made possible by the Commonwealth of Pennsylvania under the Ben Franklin  
Technology Development Authority and the Nanotechnology Institute.**

## NON-CONFIDENTIAL EXECUTIVE SUMMARY

Proposal Title

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University/Institute Name(s)

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Provide a one-page maximum Executive Summary of the project addressing each of the following:

- 1) a description of the proposed research
- 2) the commercial application(s) that the proposed research addresses
- 3) anticipated scientific, technological, and commercial impact of the project

\* Information provided in this Executive Summary may be used as needed by the NTI and all affiliates in public communications about NTI programs and initiatives. Grant applicant and partners acknowledge that information provided in the Executive Summary may be made available to the public at any time by any method.

## TECHNICAL DESCRIPTION

**A. Problem Statement.** Address each of the following. Use a maximum of two (2) pages.

1. Identify the goals and objectives of the project.
2. Describe the present state of the technology (or technologies) that forms the basis of the project.
3. What is limiting in the current technology that makes improved technology, which will be addressed by the proposed research, desirable?
4. Identify competing technologies and the specific advantage(s) and disadvantage(s) of the proposed technology.

**B. Program of Work.** Address the following. Use a maximum of five (5) pages.

1. Describe the method(s) you will use to meet the technical goals. Include any preliminary data that support your choice of methodology and the feasibility of the proposed project.
2. Describe in detail the specific work to be carried out.
3. Specify the role of each participating organization and where the work will be conducted.
4. Summarize the facilities available to the project, whether at the university/non-profit laboratories, the company work site(s), or identified service providers.
5. Describe the roles of the key personnel in the project. Summarize the qualifications of the project's management and technical team members, showing how their education and work experience qualify them for the project.

**C. Contractual Agreements.** Briefly describe any university-industry or sub-contract arrangements addressing the following (maximum of one (1) page; provide attachments as needed).

In the case of a university-industry collaborative research project that is critically related to the proposed work:

1. If applicable, attach the signed intellectual property agreement between the company (or companies) and the university/non-profit institution.
2. Has a contractual relationship between the company and the university/non-profit institution been signed? If not, when will a contract be signed?

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3. Describe any business relationship (e.g., employee, consultant) that the principals, directors, officers, employees or advisors of the firm(s) have with the university or non-profit partner.

For sub-contracted research:

1. Has a qualified service provider been identified?
2. Have quotes for services indicated in Program of Work been obtained? If so, please attach.

**D. References.** References are not included as part of the page limits described above, but is required. Each reference must include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication. If the document is available electronically, it is preferred that the website address be identified. Proposers must be especially careful to follow accepted scholarly practices in providing citations for source materials relied upon when preparing any section of the proposal. While there is no established page limitation for the references, this section must include bibliographic citations only and must not be used to provide parenthetical information outside of the technical description described above.

**E. Biographical Sketches.** Append a 2 page curriculum vitae of each team member. The style of CV used for NSF or NIH proposals is suitable.

**F. Current and Pending Support.** This section of the proposal calls for required information on all current and pending support for ongoing projects and proposals. All current project support from whatever source (e.g., Federal, State, local or foreign government agencies, public or private foundations, industrial or other commercial organizations) must be listed for each PI. The proposed project, and all other projects or activities requiring a portion of time of the PIs, must be included, even if they receive no salary support from the project(s). The total award amount for the entire award period covered (including indirect costs) must be shown as well as the number of person-months per year to be devoted to the project, regardless of source of support. Similar information must be provided for all proposals already submitted or submitted concurrently to other possible sponsors including NTI. The NSF style of Current and Pending support documents is suitable for this section of the proposal.

**G. Facilities, Equipment and Other Resources.** This section of the proposal is used to assess the adequacy of the organizational resources, such as important major pieces of equipment, available to perform the effort proposed. Proposers must describe only those resources that are directly applicable.

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## PROJECT BUDGET

Budgets should clearly show how Core funds will be used to achieve project goals. Please review the eligible expenses and budget guidelines below before preparing your project budget.

Expenditures are categorized as: personnel, consultants and subcontracts, and other direct expenditures. Please also note the following:

1. Personnel for the project should be listed individually by their place of employment, together with their title and their time allocation to the project. Identify all students supported by Core funds, listing stipends and tuition separately.

University contribution of faculty release time, student stipends, and benefits should be listed as university personnel expenditure.

2. Note: Equipment may not be purchased with Core funds. The Fund may, however, be used for the rental of equipment. If funds are needed for this purpose the rental cost should be shown in the column under Other Direct Costs.
3. Identify consultants and subcontracts and attach quotes for services at the end of the grant application.
4. Other direct costs include materials, cost of equipment use, travel directly related to the research, printing, library search fees, travel etc.

Any materials purchased or manufactured by the company for the project should be listed as expenditures by the company even in the case where they are subsequently given to the research institution.