



## **NIST SBIR Program**

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# National Institute of Standards and Technology (NIST)

**Mission** – To promote U.S. innovation and industrial competitiveness by advancing

- Measurement science
- Standards
- Technology

in ways that enhance economic security and improve our quality of life.

# NIST Technologies with commercial application

- NIST researchers interact extensively with industrial counterparts as a natural part of their work in carrying out mission
- Feedback from industrial sources informs NIST research and maintains its relevance to commercial needs
- Technologies that result from NIST research may have commercial viability but often require additional research that feds may not conduct

# NIST SBIR Program Overview

- NIST SBIR Program, relatively small, emphasizes:
  - transfer federal technologies to small businesses*
  - &*
  - use of small businesses for fed R&D needs*
- **Contracts** are used as funding agreement

# NIST Funding Expectations for FY10

## Phase 1 Contracts:

7 months

~ 14 (\$90 K)

## Phase 2 Contracts:

2 year R&D

~ 10 (\$300 K)

+ 1 yr commercialization activity

# “Contracting” agency

Government specifies exactly what R&D is needed and accepts/pays interim invoices upon acceptance of progress made toward proposed milestones

# Considerations

- Subject to availability of funds, technical assistance is offered to awardees
- Collaboration with NIST researcher during project is often provided – stated in subtopic
- Subtopic authors, reviewers, contract monitors: NIST employees
- Historical data:
  - ~ 10% probability of ph1 award
  - ~ 30% probability of ph2 award
  - ~ 5% probability of ph3 award w NIST

# NIST Technologies with commercial application

- Identified new marketing channel: SBIR
- Systematically create spin-offs

# Goals of the SBIR Program

- To increase private sector commercialization of innovations derived from federal R&D
- To use small business to meet federal research and development needs
- To stimulate small business innovation in technology
- To foster and encourage participation by minority and disadvantaged persons in technological innovation

# NIST SBIR TT Solicitation

- The NIST SBIR TT Program emphasizes an “increase in private sector commercialization of innovations derived from federal R&D” per legislation
- Commercially promising NIST patents and technologies are identified along with the research gaps that delay their commercialization

# NIST SBIR TT Solicitation (cont'd)

- Grant a **non-exclusive research license** to the SBIR awardee
- Proposal acts as research plan for license application
- ❖ **Provide the opportunity of a non-exclusive commercialization license to the awardee**
- Rights to all SBIR funded research will be owned by the small business awardee → Gov't use license reserved

# NIST SBIR TT

Once selected and supported with a license to use NIST technology, the SBIR awardee will:

- Have access to NIST personnel, facilities, and knowledge regarding the invention (as necessary)
- Be in a position to create and add their own innovation(s)
- Potentially develop a product based on the NIST patent

# NIST SBIR TT “Packages”

- background commercially promising NIST technologies
- + the technological gaps needed to transition to the marketplace (expert driven)
- + “seed money”
- + licenses, as needed
- + access to NIST assets

\*\* Requires late stage reporting on commercialization activity

# NIST SBIR TT Program

NIST resources made available to SBIR Awardee

SBIR-TT Awardee

SBIR \$\$

Identify background, commercially-viable NIST technology

If necessary, patent license granted

Conduct research & introduce innovations

Increase TRL of fed lab tech

Bridge valley of death

Market adoption or Follow-On Funding

Researcher/inventor consultation

Facilities, equipment

Materials, drawings, software, etc

Needs/Capability Gaps Assessment

# Results so far...

- FY08 Pilot resulted in:
  - 11 phase 1 projects
  - 1 commercialization license
  - 2 research licenses
- In FY09:
  - 16 phase 1 projects
  - 9 phase 2 projects
  - 9 research licenses
  - One additional commercialization license (pending)

# Sample of SBIR TT Awards ...

Optimized Soft Magnetic Electrodes for Ultra-Sensitive Magnetic Tunnel Junction Field Sensors

RBAC-Based Workflow

High Efficiency Single Photon Up-Conversion in Waveguides and Pump Wavelength Longer than the Signal Wavelength

MWIR Spatial Light Modulators for Hyperspectral Image Projectors

Extended Refreshable Tactile Graphic Display (with Linear Actuation Array)

AC Amplifier and System for Nanopore Based DNA Sequencing

Large Area Domain Engineered Thin Film Ferroelectric Pyroelectric Detectors

A Microcalorimeter Alpha Spectrometer for Analysis of Nuclear Material

High-Accuracy, AC Resistance-Ratio Bridge

Detecting Intrusion from Network Anomalies (DINA)

# Currently open “TT” Subtopics

- Microfluidic Palette for Cellular Response to Chemical Stimuli
- Multi-well Cell Culture Clate for Oxygen Measurement
- Ultra-rapid Microtiter Plate Reader with “Detectorless” Electrophoresis Detection
- Semi-Autonomous, Articulated Forklift (SAAF) in Close Proximity to Workers
- Technology Transfer of Multimodal Biometric Application Resource Kit (MBARK)
- Single Photon Sensitive Spectrometer for Infrared Signals
- Development of a MEMS Oscillatory Parallel-Plate Rheometer
- Resonance Tracking Electronics for Scanned Probe Microscopy
- Monolithic Highest Precision Planar Two Degree of Freedom and Three Dimensional Space Six Degree of Freedom Nanopositioners

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