NIST Centers of Excellence

Visiting Committee on Advanced Technology
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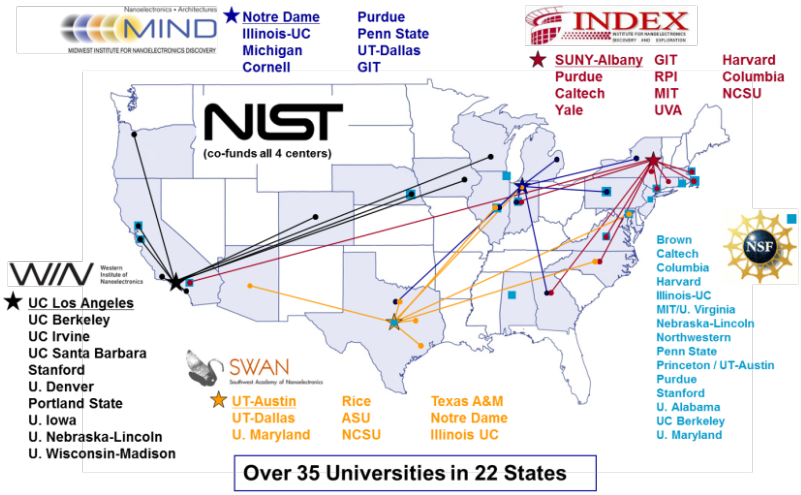
NIST
National Institute of Standards and Technology
U.S. Department of Commerce

NIST Partnerships

NIST has a proven record of engagement with academia and industry, and has previously demonstrated that leveraging NIST base resources through differing venues greatly enhances the value of NIST funding, particularly in joint institutes formed with universities.

JILA 50th — CU-Boulder and NIST — 1962 - 2012

MAKE IT IN AMERICA
MANUFACTURING EXTENSION PARTNERSHIP



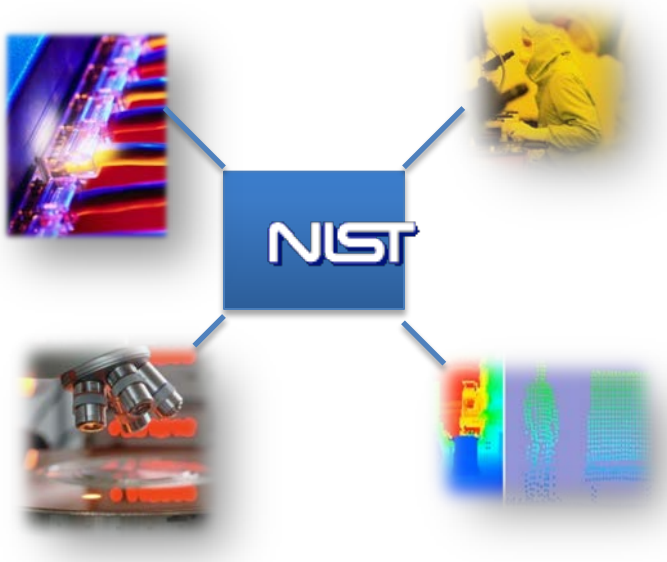
jqi Joint Quantum Institute

Industry Driven Consortia

NIST Centers of Excellence (+$20.0M) -- Update

Proposed Initiative in FY13 -- This initiative will provide support for centers focused on emerging areas of research and technology to be determined by NIST.

- Create multidisciplinary centers of excellence in critical areas of emerging technology leveraging the measurement science of NIST with leading researchers in academia and industry
- More rapidly meet industrial needs with local presence
- Leverage multidisciplinary capabilities of Centers back into NIST core activities



Credit: NIST

Initiative is supported in both House and Senate Report Language for FY13 at the $20M level

Six month C.R. will delay launch of program

Planning is continuing

Preparation for FY13 Funding

- Working with the IDA's Science and Technology Policy Institute (STPI)
  - Scan research and technology space to identify emerging science/technology areas
    - Interviews, conference trends, literature, patents, websites, Academy reports, other funding activity (NIH, NSF, DOE, foundations, etc)
  - Conduct detailed analysis of six to eight priority areas
  - Report to NIST in Spring 2013 (timing of report will coincide with end of CR)

- Solicited NIST labs to generate potential CoE ideas
  - Technical ideas aligned with the NIST mission
  - Potential governance models
  - Role of NIST staff
  - Other elements which may be critical to success of the Centers

Potential Topic Areas Under Discussion

Only a partial list and not given in any priority order:

- Big Data
- Quantitative Biology
- Complex Systems
- Materials Modeling and Simulation
- Synthetic Biology
- Bioinformatics
- Carbon-based nanomaterials
- Metrological Education
- Clean Energy Systems
- Nondestructive Evaluation
- Disaster Resilience
- Sustainable Engineered Materials

Center Objectives

- Assist NIST in meeting its mission needs in new or expanding areas of strategic focus, and provide expanded opportunities for NIST to engage with industry and entrepreneurs.
  - Better leverage existing areas of research expertise
- Enhance technical innovation through earlier alignment of measurement science in new areas of research and technology
- Foster and facilitate the expanded development of expertise in measurement science for students and early-career scientists and engineers.
- Expand NIST's strategic foot print

Potential Roles of a Center

- Ability to leverage the resources of pre-existing hubs of institutional/regional expertise in areas of science and technology that are aligned with the long-term strategic needs of NIST.
- Utilize and leverage existing NIST facilities (including user facilities) and/or provide access to a broader range of research facilities
- Provide environments or frameworks for multidisciplinary or multi-organizational collaborations.
- Provides unique opportunities for industrial and entrepreneurial engagement either for unique research opportunities or by facilitating access to one of a kind capabilities.
- Enable greater tacit knowledge tranfer through co-localization of researchers
- Diversity in topical areas and geography
- Inclusion of under-represented groups in STEM through partnerships with minority serving institutions.

Flexibility Will be Critical

- There is not a silver bullet approach to constructing a center. Must be tailored to best address challenge.
- A center maybe:
  - A long-term collaboration with an academic institution aka JILA
  - A more problem focused multi-stakeholder collaborative organization (aka the CCOE)
  - A user facility model (aka CNST) that provides access to unique capabilities or facilities