

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

GUIRR UPDATE

Meeting of the Federal Demonstration Partnership (FDP)

Susan Sloan
Director, GUIRR
May 11, 2017



Government | University | Industry

RESEARCH ROUNDTABLE

Policy and Global Affairs Division

Government-University-Industry Research Roundtable

- Convening body of the National Academies of Sciences, Engineering, and Medicine (and 'secretariat' for the FDP)
- Created in 1984 "to convene senior-most representatives from government, university, and industry to define and explore critical issues related to the national and global science and technology agenda"
- Roundtable convenes 3 times yearly in Washington, DC
- Meetings designed around topics that are often newly emerging at the leadership level in one sector but impact/involve/affect other sectors

GOVERNMENT-UNIVERSITY-INDUSTRY RESEARCH ROUNDTABLE

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First Meeting of 2017

Examining the Mistrust of Science
February 28 - March 1, 2017 | National Academy of Sciences Building, Washington, DC 20418

Background content includes:
- Matrix elements: $(a) = \begin{pmatrix} 0 & 0 & \sqrt{2} & 0 \\ 0 & 0 & 0 & \sqrt{5} \\ \dots & \dots & \dots & \dots \\ 0 & 0 & 0 & 0 & \sqrt{n} \end{pmatrix}$
- Integrals: $\int_0^{\theta} \frac{d\theta}{(0^2 - \theta^2)^{1/2}} = \left(\frac{2}{L}\right)^{1/2} \int dt$
- Wave function: $W(\phi) = \frac{1}{r(\phi)}$
- Commutator: $[\hat{a}, \hat{a}^\dagger] = 1$
- Energy: $E = mc^2$
- Schrödinger equation: $i\hbar \frac{\partial}{\partial t} \Psi(\vec{r}, t) = -\frac{\hbar^2}{2m} \Delta \Psi(\vec{r}, t) + V(\vec{r}, t) \Psi(\vec{r}, t)$
- Laplacian: $\Delta = \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} + \frac{\partial^2}{\partial z^2}$
- Probability density: $\int |\Psi(\vec{r}, t)|^2 d^3r = 1$
- Harmonic oscillator: $F = -Cx$, $M\ddot{x} + Cx = 0$, $x = A \sin(\omega t + \phi)$, $\omega = \left(\frac{C}{M}\right)^{1/2}$
- Expectation value: $\frac{1}{2m} \langle \hat{p}^2 \rangle = -\frac{\hbar^2}{2m} \int \psi_n^*(x) \frac{d^2}{dx^2} \psi_n(x) dx$
- Angular momentum: $J_x = (\hat{r} \times \hat{p})_x = -M L^2 \dot{\theta}$, $M L^2 \ddot{\theta} = -(Mg) \sin \theta$
- Energy levels: $n+1 \rightarrow |\varphi_{n+1}\rangle$, $|\varphi_{n-1}\rangle$

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We considered:

- (1) the trends in public opinion of science
- (2) potential sources of mistrust both internal and external to the science community
- (3) ways in which cross-sector collaboration between government, universities, and industry may improve public trust in science and scientific institutions in the future

Written summary due to be released within the next month

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Next Meeting



BEYOND PATENTS: Assessing the Value and Impact of Research Investments

June 27-28, 2017 | National Academy of Sciences Building, Washington, DC 20418

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We expect to consider:

- (1) Why patents alone are not an accurate measure of innovation
- (2) What other measures of translational and transition impact are available
- (3) What metrics best serve to highlight the value of research investments
- (4) What mechanisms are needed to determine the right amount, the proper balance, and the overall effectiveness of research investments

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GUIRR Monthly Webinar Series

Webinars held since the last FDP meeting include:

- April 24, 2017 – The NIH Microphysiological Systems Program: Tissues-on-chips for Drug Safety and Efficacy Studies
- March 29, 2017 – Women, Minorities, and Persons with Disabilities in Science and Engineering
- February 15, 2017 – Rebuilding Our Innovation Infrastructure for the 21st Century
- January 24, 2017 – Making and Makerspaces in Education: Resources for Innovative Learning

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Upcoming Webinar

FREE * ONLINE REGISTRATION REQUIRED * 1 pm ET/10 am PT

May 22, 2017

Highly Integrative Basic and Responsive Research (HIBAR): Partnerships for Discovery and Innovation

Fundamental research carefully linked to real-world problem contexts appears to produce stronger theories and more societally valuable results. The term Highly Integrative Basic and Responsive (HIBAR) Research conveys these aspirations.

We will consider strategies to more reliably produce HIBAR research through:

(1) Partnerships with business and government (cities, counties, state, federal), as well as non-governmental organizations (NGOs) and **(2)** Policy changes to campus hiring/tenure/promotion rules so as to support teamwork and problem orientation that includes off-campus partnerships and on-campus collaborations.

Presenters: Dan Sarewitz (ASU) and Ben Shneiderman (UMD)

Webinar Moderator: Megan Nicholson, GUIRR Associate Program Officer

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International Research Collaborations

- Planning an international workshop to be held October 2-4, 2017 at the NAS building in Washington, DC
- FOCUS: Ethics of data usage in international research collaboration
- Will address such topics as how local and regional attitudes, cultures, and legal systems view data, data ownership, use and control of data as well as issues of privacy and confidentiality

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Thank you. Questions?

ssloan@nas.edu

mnicholson@nas.edu

cbaylor@nas.edu

www.nas.edu/guirr

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