Discovery with Delivery

Richard O. Buckius,
Vice President for Research

Board of Trustees
February 3, 2012
• Faculty Recognitions
• Research Awards and Synergies
• Facilities and Infrastructure
• Research Trends
• Partnerships
Rakesh Agrawal
Winthrop E. Stone Distinguished Professor in Chemical Engineering

- Awarded the National Medal of Technology and Innovation from President Barack Obama

  Citation: “… an extraordinary record of innovations … significant positive impacts on electronic device manufacturing, liquefied gas production and the supply of industrial gases for diverse industries.”

- 116 U.S. patents, nearly 500 non-U.S. patents and 93 technical papers
Connie Weaver
Distinguished Professor, Head of Foods & Nutrition

- Awarded the **Linus Pauling Institute Prize for Health Research**

- The award is one of the most significant in the field of diet and nutrition, recognizing excellence in research and successful efforts to disseminate new knowledge to the public and the health profession.
Alexandra Boltasseva
Assistant Professor of Electrical and Computer Engineering

- Named one of the world's top young innovators by *Technology Review* magazine, which recognizes 35 of the world's top innovators under the age of 35 in energy, medicine, computing, communications, nanotechnology and other emerging fields.

- Her research includes a new class of "plasmonic metamaterials" as potential building blocks for advanced optical technologies.
Gebisa Ejeta
Distinguished Professor of Agronomy
Executive Director, Purdue Center for Food Security
Member of the Board for International Food and Agricultural Development

Willie Reed
Dean, School of Veterinary Medicine
United States Department of Agriculture Secretary’s Advisory Committee on Animal Health
Ulrike Dydake, Assistant Professor of Health Sciences, received over $2 million through an Outstanding New Environmental Scientist Award from the National Institute of Environmental Health Sciences.

Demetra C. Evangelou, Assistant Professor of Engineering Education, received the Presidential Early Career Award for Scientists and Engineers (PECASE), the highest honor given by the U.S. government to science and engineering professionals in the early stages of their independent research careers.
NATIONAL RECOGNITIONS

- 3 new American Academy of Arts and Sciences members
- 13 new Fellows of the American Association for the Advancement of Science
- 8 new NSF Early Career Development Awards

L. Jamieson  J. Melosh  E. Negishi
$1.25 million over 2 years from National Science Foundation

PI: Tim Sands, Provost
Co-PIs: Maureen McCann, Biology; Gabriela Weaver, Chemistry; Sydney Moon, Education

Goals:
• Provide professional development to rural science teachers so they can develop lessons on topics such as alternative energy and climate change
• Spark interest in STEM education
Launching Tomorrow’s Leaders

National Genomics Research Initiative

- Howard Hughes Medical Institute’s Science Education Alliance
- PI: Kari Clase, Industrial Technology Co-PI: Jenna Rickus, Biomedical Engineering
- 3 years of funding for biotechnology lab courses
- Undergraduate students isolate and characterize bacteriophages from local soil; one is chosen to have its DNA sequenced and annotated.
Meeting Global Challenges
Strengthening Afghan Agriculture Faculties Agreement

- $32 million over 5 years from U.S. Agency for International Development

- PI: Kevin McNamara, Agricultural Economics; Co-PI: Jesse Lowenberger-DeBoer, Agriculture International Programs

- Goal: Improve capabilities of Afghanistan’s agricultural universities
The Global Policy Research Institute

Seed grants
- Daniel P. Aldrich, political science
- Sophie A. Lelièvre, basic medical sciences
- Sonak Pastakia, pharmacy practice
- Paul V. Preckel, agricultural economics
- Leigh S. Raymond, political science
- Matthew Huber, earth and atmospheric sciences
- James M. Lowenberg-Deboer, agricultural economics
- S. Laurel Weldon, political science

Partnership grants with the Center for Global Food Security
- Thomas W. Hertel, agriculture
- Klein Ileleji, agricultural and biological engineering
- Betty Bugusu, International Food Technology Center
- Abdelfattah M. Nour, basic medical sciences
Center for Science of Information

- Indiana’s first National Science Foundation Science and Technology Center
- $25 million over 5 years
- Led by Wojciech Szpankowski, Saul Rosen Professor of Computer Science
- Partners: Bryn Mawr College; Howard University; MIT; Princeton; Stanford; UC Berkeley; UC San Diego; and Illinois
S. Laurel Weldon
Professor, Political Science

Author, *When Protest Makes Policy: How Social Movements Represent Disadvantaged Groups*

Media interest from: The Globe and Mail; Fox National TV; CBC TV (Canada); WIBC; Northwest Indiana Business Quarterly Magazine; South Bend Radio
Herrick Labs
Center for High Performance Buildings

- $30.75 million ($11.75 million from National Institute of Standards and Technology; remainder from private donors)
- 63,991 gross square feet
- Living Laboratory, Performance Based Engineering Laboratory, Engine Test Cells, Vibration Electromechanical and Thermal Systems Laboratory
Multidisciplinary Cancer Research Facility

- $14.9 million from National Institutes of Health
- 28,603 gross square feet
- Support Disease Focused Research, Biofuels and Bionanotechnology Instrumentation
Drug Discovery Facility

- $25 million (bonds and gifts)
- 65,397 gross square feet
- Includes renovation of animal space and creation of an animal imaging center
Health and Human Sciences Research Facility

- $38 million (bonds and gifts)
- 129,545 gross square feet
- New home for Speech, Language, and Hearing Sciences; Medical Education; Clinical Facilities
- Adjacent Parking Garage – $16 million
Purdue System-Wide Awards

Years:
- FY06
- FY07
- FY08
- FY09
- FY10
- FY11

Amounts:
- $0
- $100
- $200
- $300
- $400
- $500

ARRA (light blue)
RESEARCH TRENDS

Total Research Support Expenditures

- FY06
- FY07
- FY08
- FY09
- FY10
- FY11

Millions

$0

$100

$200

$300

$400

$500

$600
FY10 TOTAL R&D EXPENDITURES

In millions; includes Medical Sciences

Source: Office of Institutional Research
FY10 TOTAL R&D EXPENDITURES
In millions; excludes Medical Sciences

Source: Office of Institutional Research
FY11 AWARDS BY SPONSOR

- National Science Foundation, 23%
- Industrials and Foundations, 16%
- Dept of Health & Human Services (NIH), 14%
- Dept of Agriculture, 7%
- Dept of Energy, 9%
- Dept of Defense, 9%
- Other Federal <$10M & Foreign Govts, 12%
- State/Local Govts, 6%
- Purdue Research Foundation/Purdue University, 3%
RESEARCH CONNECTIONS

FY11 Awards
$401M
West Lafayette Campus

Note: Areas of pie charts are proportional to award amounts.
RESEARCH TRENDS

Awards

- **Purdue (w/o DP)**
- **Discovery Park**

**Millions**

- FY02
- FY03
- FY04
- FY05
- FY06
- FY07
- FY08
- FY09
- FY10
- FY11
DISCOVERY WITH DELIVERY

P U R D U E   U N I V E R S I T Y

Discovery Park
QUESTIONS?
RESEARCH TRENDS

Awards and Expenditures

Millions

FY06 FY07 FY08 FY09 FY10 FY11

West Lafayette Award | Calumet Award | Fort Wayne Award | North Central Award
West Lafayette Exp | Calumet Exp | Fort Wayne Exp | North Central Exp

PURDUE UNIVERSITY