Board of Trustees Meeting
October 6, 2023
# Sponsored Research Awards Highlights

## June 2023

<table>
<thead>
<tr>
<th>Principal Investigator and Department</th>
<th>Sponsor</th>
<th>Grant Title</th>
<th>Total Project Award Amount</th>
</tr>
</thead>
</table>
| Marc Caffee  
College of Science – Physics and Astronomy | National Science Foundation | Collaborative Research: Research Infrastructure: CFS (Track III) Cosmogenic Nuclides in Earth Science Research: Allied facilities for sample preparation, analysis, and training | $3,793,185.00 |
| Shelley MacDermid Wadsworth  
College of Health and Human Sciences – Human Development and Family Sciences | Lilly Endowment Inc. | Sustaining Support for Military and Veteran Families | $3,500,000.00 |
| Dallas Morisette  
College of Engineering – Electrical and Computer Engineering | GlobalFoundries U.S. Inc. | Optimization and Commercialization of Advanced Trench SiC MOSFETs | $2,626,091.00 |
| Shaoshuai Mou  
College of Engineering – Aeronautics and Astronautics | Saab North America Inc. / Office of Naval Research | Threat & Situational Understanding with Networked-Online Machine Intelligence (TSUNOMI) | $4,372,073.00 |
| Mathew Trampski  
Centers & Institutes – Technical Assistance Program/Manufacturing Extension Program | Bank of America | Global Operations Executive Education Program | $2,250,419.00 |
| Amit Varma  
IRIS – Infra Research & Innovative Solutions | Bechtel National Inc. / U.S. Department of Air Force | BNI Phase 2 Dynamic Testing (GBSD Phase II) | $2,544,864.01 |
| George Wodicka  
Centers & Institutes – Bindley Bioscience | Indiana University / National Institutes of Health-National Center for Advancing Translational Sciences | Indiana Clinical and Translational Sciences Institute | $6,849,951.00 |
| Gyeong Mee Yoon  
College of Agriculture – Botany and Plant Pathology | National Science Foundation | A functional link between ethylene biosynthesis and autophagy | $1,156,024.00 |
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**July 2023**

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<tbody>
<tr>
<td>Stephen Beaudoin</td>
<td>Advanced Technology International / U.S. Department of Defense</td>
<td>Modern Manufacturing of Energetics</td>
<td>$2,300,000.00</td>
</tr>
<tr>
<td>Darcy Bullock</td>
<td>Indiana Department of Transportation / U.S. Department of Transportation</td>
<td>TPF-5(519): Expansion: Enhanced Traffic Signal Performance Measures</td>
<td>$1,020,000.00</td>
</tr>
<tr>
<td>Amanda Case</td>
<td>National Science Foundation</td>
<td>Fostering Black and Latinx student STEM efficacy, interests, and identity: A participatory study of STEM programming and practices at one community-based organization</td>
<td>$1,969,709.00</td>
</tr>
<tr>
<td>Supriyo Datta</td>
<td>Office of Naval Research</td>
<td>OptNet: Optimization with p-bit Networks</td>
<td>$4,500,000.00</td>
</tr>
<tr>
<td>Kathleen Howell</td>
<td>Air Force Office of Scientific Research</td>
<td>Characterizing Highways &amp; Automated Navigation in Cislunar Environment (CHANCE)</td>
<td>$4,499,998.00</td>
</tr>
<tr>
<td>Yk Hei Franki Kung</td>
<td>National Science Foundation</td>
<td>CAREER: Mechanistic Dehumanization of Asians: Identifying Causes, Consequences, and Countermeasures for a More Inclusive STEM Workforce</td>
<td>$936,983.00</td>
</tr>
<tr>
<td>Christina Li</td>
<td>Public Health Service-National Institutes of Health-National Institute of General Medical Sciences</td>
<td>Heterogeneous Directed Hydrogenation of Arenes and Olefins with Chemo- and Stereoselectivity</td>
<td>$1,865,324.00</td>
</tr>
</tbody>
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</table>
| Shelley MacDermid Wadsworth  
College of Health and Human Sciences – Human Development and Family Sciences | U.S. Army Medical Research Acquisition Activity | Turning Training into Action: Translating Training of Behavioral Health Providers into Evidence-Based Practices | $1,294,062.00 |
| Jenna Rickus  
Vice Provost for Teaching and Learning – Vice President for Teaching and Learning Administration | Lilly Endowment Inc. | Purdue University Science of Reading Implementation Grant | $1,500,000.00 |
| Severin Thomas Schneebeli  
College of Pharmacy – Industrial and Physical Pharmacy | National Institutes of Health | Robust Sequence-defined Nanocages with Protein-mimetic Cavities | $1,832,411.00 |
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<thead>
<tr>
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<th>Sponsor</th>
<th>Grant Title</th>
<th>Total Project Award Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunil Bhave</td>
<td>École polytechnique fédérale de Lausanne / Defense Advanced Research Projects Agency</td>
<td>An integrated optomechanical mid-IR detector based on soft-clamped ultrahigh-Q resonators</td>
<td>$1,077,938.00</td>
</tr>
<tr>
<td>Daniel DeLaurentis</td>
<td>Stevens Institute of Technology / Systems Engineering Research Center</td>
<td>WRT 1080- Research in support of the Defense Civilian Training Corps (DCTC) Program Development, Piloting, and Instrumentation</td>
<td>$4,455,594.00</td>
</tr>
<tr>
<td>Songlin Fei</td>
<td>American Forest Foundation / Natural Resources Conservation Service</td>
<td>Engaging Family Forests to Improve Climate-Smart Commodities (EFFICACI)</td>
<td>$8,957,033.00</td>
</tr>
<tr>
<td>Daniel Flaherty</td>
<td>University of Rochester / Public Health Service-National Institutes of Health-National Institute of Allergy and Infectious Diseases</td>
<td>Inhibitors of adaptive efflux mediated resistance in Acinetobacter baumannii</td>
<td>$1,748,870.00</td>
</tr>
<tr>
<td>Krishna Jayant</td>
<td>Public Health Service-National Institutes of Health-National Institute of Mental Health</td>
<td>Massively scalable 3D electrophysiology and two-photon imaging in freely-moving animals</td>
<td>$1,304,216.00</td>
</tr>
<tr>
<td>Eugene Jones</td>
<td>Office of Local Defense Community Cooperation</td>
<td>Indiana Defense Industrial Base (DIB) Capability Accelerator Program (IDCAP) 2.0 - Modernization</td>
<td>$1,000,000.00</td>
</tr>
<tr>
<td>Tongcang Li</td>
<td>Gordon and Betty Moore Foundation</td>
<td>Nuclear spin detection and control in 2D materials</td>
<td>$1,250,000.00</td>
</tr>
</tbody>
</table>
## Sponsored Research Awards Highlights

### August 2023

<table>
<thead>
<tr>
<th>Principal Investigator and Department</th>
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<th>Grant Title</th>
<th>Total Project Award Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linda Mason College of Agriculture – Entomology</td>
<td>National Science Foundation</td>
<td>NSF Graduate Research Fellowship Program (GRFP) - Program Year 2023-24</td>
<td>$2,407,000.00</td>
</tr>
<tr>
<td>Scott Meyer College of Engineering – Mechanical Engineering</td>
<td>Rolls-Royce Corporation</td>
<td>Increased High Pressure Air Storage for Zucrow Laboratories</td>
<td>$3,348,000.00</td>
</tr>
<tr>
<td>Andrew Otte College of Engineering – Biomedical Engineering</td>
<td>National Institutes of Health-National Institute on Drug Abuse</td>
<td>Long-acting biodegradable buprenorphine depots</td>
<td>$1,745,583.00</td>
</tr>
<tr>
<td>Yichao Rui College of Agriculture – Agronomy</td>
<td>National Institute of Food and Agriculture</td>
<td>Empowering Indiana's Organic Farmers: Assessing Regional and Farm Scale Soil Health with a Farmer Network</td>
<td>$999,297.00</td>
</tr>
<tr>
<td>Carson Slabaugh College of Engineering – Aeronautics and Astronautics</td>
<td>Air Force Research Laboratory</td>
<td>Liquified Natural Gas for Aviation Propulsion</td>
<td>$3,500,000.00</td>
</tr>
<tr>
<td>Kevin Webb College of Engineering – Electrical and Computer Engineering</td>
<td>Air Force Office of Scientific Research</td>
<td>Super-Resolution Imaging and Sensing with Relative Motion in Structured Illumination and Multiply-Scattered Light</td>
<td>$1,255,785.00</td>
</tr>
<tr>
<td>Amanda Dovidio Zelechoski College of Humanities, Education and Social Sciences – Psychology</td>
<td>Substance Abuse and Mental Health Services Administration</td>
<td>Northwest Indiana Identification and Management of Pediatric Experiences of Trauma and Underlying Stress (NWI IMPETUS)</td>
<td>$2,999,623.00</td>
</tr>
</tbody>
</table>
# Sponsored Research Awards Highlights

**September 2023**

<table>
<thead>
<tr>
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<th>Grant Title</th>
<th>Total Project Award Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marshallrhea Evans Baker</td>
<td>Health Resources and Services Administration</td>
<td>Yet Up! The National HCOP Academy for Veterinary Medicine</td>
<td>$3,225,879.00</td>
</tr>
<tr>
<td>Adam Baxmeyer</td>
<td>Federal Aviation Administration</td>
<td>Runway 5/23 Rehabilitation and Taxiway B3 Removal</td>
<td>$2,747,650.00</td>
</tr>
<tr>
<td>Chittaranjan Das</td>
<td>Public Health Service-National Institutes of Health-National Institute of General Medical Sciences</td>
<td>Mechanism of atypical ubiquitination and deubiquitination by bacterial effectors</td>
<td>$1,769,331.00</td>
</tr>
<tr>
<td>Rong Huang</td>
<td>Army Medical Research Acquisition Activity</td>
<td>Targeting NNMT to inhibit obesity-associated breast cancer development and progression</td>
<td>$1,054,933.00</td>
</tr>
<tr>
<td>Casey Downs Mull</td>
<td>National Institute of Food and Agriculture</td>
<td>FY2023 Military Teen Adventure Camps</td>
<td>$1,140,000.00</td>
</tr>
<tr>
<td>Natalia Maria Rodriguez</td>
<td>Public Health Service-National Institutes of Health-National Institute on Minority Health and Health Disparities</td>
<td>Addressing Cervical Cancer Disparities Among People Experiencing Homelessness</td>
<td>$1,382,625.00</td>
</tr>
<tr>
<td>Tianyi Zhang</td>
<td>National Science Foundation</td>
<td>Proto-OKN Theme 1: Knowledge Graph Construction for Resilient, Trustworthy, and Secure Software Supply Chain</td>
<td>$1,499,989.00</td>
</tr>
</tbody>
</table>
## Resolutions of Appreciation

<table>
<thead>
<tr>
<th>Donor</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anonymous</td>
<td>$25M</td>
</tr>
<tr>
<td>College of Engineering</td>
<td></td>
</tr>
<tr>
<td>Scott and Julie Moorehead</td>
<td>$2.5M</td>
</tr>
<tr>
<td>Mitchell E. Daniels, Jr. School of Business</td>
<td></td>
</tr>
<tr>
<td>Anonymous</td>
<td>$1.068M</td>
</tr>
<tr>
<td>Division of Financial Aid</td>
<td></td>
</tr>
<tr>
<td>Mary Findling</td>
<td>$1M</td>
</tr>
<tr>
<td>College of Liberal Arts</td>
<td></td>
</tr>
<tr>
<td>Richard and Anne Borch</td>
<td>Undisclosed</td>
</tr>
<tr>
<td>College of Pharmacy</td>
<td></td>
</tr>
<tr>
<td>Thomas Gambrell</td>
<td>Undisclosed</td>
</tr>
<tr>
<td>College of Health and Human Sciences</td>
<td></td>
</tr>
<tr>
<td>Barbara Kile</td>
<td>Undisclosed</td>
</tr>
<tr>
<td>College of Science</td>
<td></td>
</tr>
<tr>
<td>Trimble Inc.</td>
<td>Undisclosed</td>
</tr>
<tr>
<td>Purdue Polytechnic Institute</td>
<td></td>
</tr>
</tbody>
</table>
Purdue’s 5 Next Moves

1) Transformative Education 2.0
2) Equity Task Force
3) Plant Sciences 2.0
4) Purdue Applied Research Institute
5) National Security and Technology Initiative
“I like that I can see the overall balance of my classes, by semester instead of a big, long list of everything I have left [to graduate]. It is less stressful to me.”

Fall 2023 Pilot // First Week
- 410 students and 47 advisors have logged in 1,200 times
- Students have created a total of 577 academic plans
- Advisors have changed 191 student plans
- Advisors have made 3,600+ total changes to plans
Transforming the Academic Process

Institutional Workflow Enhancements

Fewer Forms
- Reduced 29 distinct course and curricula proposals down to 10 (65% reduction)

Faster, More Efficient Reviews
- Reduced all curricular workflows between 7 and 13 steps (50% reduction)
- New curricular workflows eliminated 78 total steps.
- Consistent, predictable approval timelines for undergraduate and graduate proposals

Faculty Time Saved
- 1500+ hours saved in faculty reviewing proposals each academic year
- 1-2 hours saved in faculty initiating and getting each academic proposal approved

Institutional Process Decisions

Academic Catalog Deadline (April 1)
- Submissions after deadline will be postponed until next academic year.

Hide Rules | Plans of Study
- For transparency and equity to all students, hiding courses will no longer be standard practice.

Variable Title Courses | Plans of Study
- For ease of degree planning and transparency, any specific variable title course number will fulfill the same degree requirements
## BLACK STUDENT CENSUS

<table>
<thead>
<tr>
<th></th>
<th>Fall '22</th>
<th>Fall '23</th>
<th># Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduates</td>
<td>946</td>
<td>1,021</td>
<td>75</td>
<td>8%</td>
</tr>
<tr>
<td>% of total undergraduates</td>
<td>2.49% 1</td>
<td>2.61%</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Graduates</td>
<td>361</td>
<td>364</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td>% of total graduates</td>
<td>3%</td>
<td>3%</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Professional 2</td>
<td>43</td>
<td>36</td>
<td>-7</td>
<td>-16%</td>
</tr>
<tr>
<td>% of total professional</td>
<td>4.68%</td>
<td>3.98%</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>All Student Levels</td>
<td>1,350</td>
<td>1,421</td>
<td>71</td>
<td>5.25%</td>
</tr>
<tr>
<td>% of total enrollment</td>
<td>2.65%</td>
<td>2.72%</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Notes:
1 Lowest % of total undergraduates in 30+ years
2 Professional students = DVM and PharmD only
3 Fall 2023 Staff and Faculty Census to be based on 10/31/2023 snapshot
4 Staff = Executive, Management, Professional, Extension, Service, Support and Temporary Categories

## BLACK FACULTY & STAFF CENSUS

<table>
<thead>
<tr>
<th></th>
<th>Fall '21</th>
<th>Fall '22 3</th>
<th># Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>T/TT Faculty</td>
<td>60</td>
<td>66</td>
<td>6</td>
<td>10%</td>
</tr>
<tr>
<td>% of total T/TT faculty</td>
<td>3.13%</td>
<td>3.18%</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Staff 4</td>
<td>227</td>
<td>268</td>
<td>41</td>
<td>18.1%</td>
</tr>
<tr>
<td>% of total staff</td>
<td>2.94%</td>
<td>3.32%</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>ALL FACULTY &amp; STAFF</td>
<td>349</td>
<td>390</td>
<td>41</td>
<td>11.7%</td>
</tr>
<tr>
<td>% of total faculty &amp; staff</td>
<td>3.04% 3</td>
<td>3.25%</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Notes:
1 Lowest % of total undergraduates in 30+ years
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MARKETING

- Direct marketing campaign (MarCom)
- College fairs + high school administrator relationships
- Campus visits
  - Precollege pathways
    - K-12 pathway programs
    - Purdue Polytechnic High Schools
    - Strengthen K-12 partnerships
- Transfers
  - Purdue regional campuses, Ivy Tech, Vincennes University
  - Leveraging Purdue University in Indianapolis
- Partnerships
  - HBCUs
  - Funding partnerships (e.g., NSF, DOD)

RECRUITING

- Critical need to increase applications from 2,600 to 5,200 over 2-3 years
- Identify target metropolitan areas
- Cultivate authentic relationships with high schools + communities
- Cover Indiana high schools with diverse populations
- Engage alumni + leverage PBAO relationships
- Create + increase on-campus activities
- Expose to college life
- Create hands-on activities (i.e., robotics, math, science)
Plant Sciences and Digital Forestry

- Playing a key supporting role in College of Agriculture being #3 in North America and #5 in the world

- Groundbreaking for university’s new phenotyping greenhouse, which will:
  - support research and discoveries related to plant health, nutrition, drought and disease stress, and root health
  - enable integration into existing controlled environment phenotyping facility

Measure every tree and crop on the planet
Plant Sciences and Digital Forestry

INSTITUTE FOR
Digital Forestry

- Mapped locations of 273,485,688 trees in 330+ cities nationwide
- Mapped locations of 3,341,088 trees in over 137,970 acres in Indianapolis
- Engaged with 15 departments or schools in Agriculture, Engineering, Libraries, Science and Polytechnic
- 2023 $10M PERSEUS grant from USDA, Purdue lead
- 2023 $9M EFFICACI grant from USDA, Purdue subcontract
Executive Leadership Team in Place
• CEO, COO, Chief of Staff, Chief External Relations Officer, Senior Directors of Finance, Senior Director of Comms, Director of Contracts
• Division and Executive Leadership met to refine PARI business model, operating assumptions and future organizational structure; 7-9 September at Purdue, 21-22 September in D.C.

Research Team
• 50+ PARI/Purdue employees charging >50% on PARI contracts (incl. 23 students)
• 2 new hires in HAMTC, 6 new GDI staff (Oct. 1) since last BOT meeting
• Moving toward a model of dedicated research staff

Facilities
• HARF occupied; sponsored research already underway in HAMTC
• Facility clearance in process for Mann Hall and HARF: NSWC site inspection 13 November
• Establishing physical presence at WestGate; negotiating 10-year lease

Advisory Board of Distinguished Leaders
• Network of champions to raise PARI stature, advise on technical topics and direction, and drive new opportunities
• Chaired by Hon. Lisa Hershman, former chief management officer; includes Gen. Hawk Carlisle, USAF (Ret.); engaging future members
National Security and Technology
• The Hypersonics Advanced Manufacturing Technology Center (HAMTC) enables the design, manufacturing, joining and testing of hypersonic components and subsystems in one location and the transition of these technologies to the defense industrial base.
• 9 PARI and 23 seconded employees
• $19.5M OSD contract

Infrastructure Research and Innovative Solutions (IRIS)
• Drives innovation, efficacy and efficiency in construction of the next generation of facilities infrastructure including hardened structures, nuclear power structures, high-rise building construction and renewable energy
• 6 PARI and 17 seconded employees
• 3 awards totaling $9.5M

Global Development and Innovation (GDI)
• PARI-GDI partners with faculty, students and staff to collaborate with primary stakeholders in lower- and middle-income countries to co-create solutions to achieve sustainable, measurable and equitable impact.
• 10 PARI and 5 seconded employees
• 5 awards totaling $4.35M

Technology Acceleration – DIAL Ventures
• Drives digital innovation to benefit the agri-food industry by launching leading startups through a venture studio model
• 8 PARI and 4 seconded employees
• $12M in investments committed from 4 investors
• $2.25M gifts to support Fellows program
Building the Pipeline

26 June NSWC Crane Visit
- CRADA signed 27 June
- DD254 initiated facility clearance process
- $2.65M initial funding

18 July NSWC Dahlgren Visit
- Draft IDIQ review 18 August
- Fall Purdue visit planned

3 August imec Visit
- PARI likely with role on $10.5M agreement
- Teaming to pursue CHIPS and other ME funding

17 August meeting with SAAB CTO and Executive Steering Group

29-30 August Visit to Sandia National Lab
- Plan to turn partnership into sponsored work
- Mark Lewis to join board on Digitally Enhanced Manufacturing

5 September signing ceremony at NSWC Crane
- Established permanent Purdue presence at WestGate

DARPA
- 25 August meeting on Hypersonics
- 15 September meeting on Energetics

18-19 September Lockheed Martin visit
- Exploring offsets opportunity

19-21 September, Hypersonic Weapons Summit Chair
- Exploring research collaboration opportunities with Peraton
- Exploring partnership and funding opportunities in Energetics
- Supporting the Indiana Research Consortium

Signed Industry Partnership Agreements:
- Stratolaunch
- Boeing
- GE
FY23: DOD is largest source of sponsored research awards — FIRST TIME EVER at PURDUE!

Notable new wins:

- Purdue Computes: DOD ME Commons award — Silicon Crossroads Microelectronics Commons (SCMC) Hub
  - Applied Research Institute (ARI): $32.9M for Year 1

Partnerships:

- Office of Naval Research (ONR)-funded project partnership with SAAB NA Inc.
  - Over $10M of direct-sponsored and federal-sponsored with SAAB over past 3 years
- AFRL Regional Research Hub
  - Greater than $25M commitment to the industry/academic partnerships

Undergraduate Opportunities:

- Defense Civilian Training Corps
  - Student scholarships to build career path with Department of Defense — $4.2M
Thank You