Sponsoring Agency Updates

Sponsoring agency directors will provide an update of new programs and activities since the last network meeting and what is on the horizon for future programs.

Mike Molnar
NIST
Manufacturing USA
Program Office

Tracy Frost
Department of Defense

Dr. Diana Bauer
Department of Energy

ManufacturingUSA

Manufacturing USA® is a national network created to secure U.S. global leadership in advanced manufacturing through large scale public-private collaboration on technology, supply chain and workforce development.

Sponsoring Agency Updates

Mike Molnar, NIST OAM Director

April 30, 2024

Advanced Manufacturing National Program Office

An interagency team building partnerships with U.S. industry and academia

Manufacturing USA Institute Competitions

AI for Resilient Manufacturing Institute

CHIPS for AMERICA

CHIPS Manufacturing USA Digital Twins Institute

Communications and Outreach Activities

Manufacturing USA National Awareness Campaign

+119.6% increase in website pageviews

+15.3% increase in social media followers

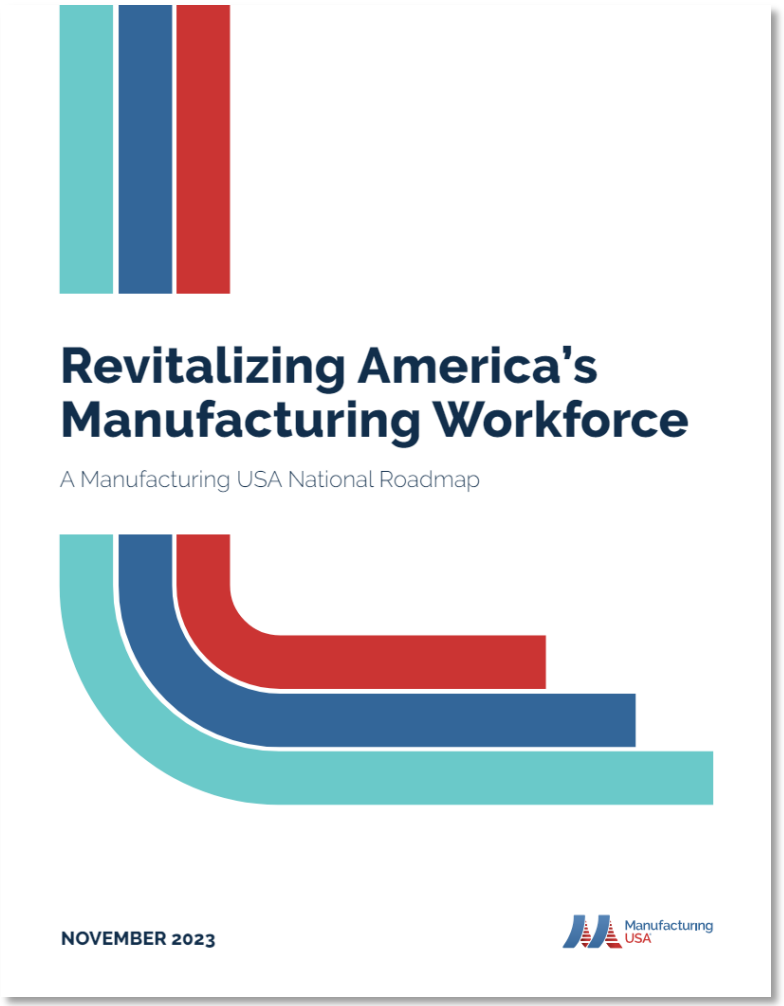
All institutes represented in national awareness campaign

5,055 media mentions in 2023

ManufacturingUSA

Education and Workforce (EWD) Development

- Launched Manufacturing USA EWD Roadmap
- EWD Connect 2.0: Coming Summer 2024
- Convening MFG USA EWD network
- Upcoming Network Presence
  - **Skills USA** Atlanta, GA - June
  - **Hi-TEC** Kansas City, MO - July
  - **IMTS Student Summit** Chicago - September
  - **SACNAS** Phoenix, AZ - October



ManufacturingUSA

Strategy and Planning – Facilitating Collaborations

Manufacturing USA Council Task Teams

- Manufacturing Extension Partnership (MEP) Collaboration
- Technology Transition

Interagency Group for alignment with CHIPS + Science Act Part B statutory requirements

- Encouraging domestic sourcing and production
- Managing foreign entity participation and policy waivers
- Factors for continuing an Institute's public benefits after federal program funding ends

ManufacturingUSA

Strategy and Planning – Opening Doors

New Collaborations

Department of Labor – writing Training and Employment Notice encouraging workforce development centers to partner with Institutes and MEP Centers

National Science Foundation – investigating tying NSF-funded early-stage research and internships to Institute technology strategies

DARPA – exploring recognizing Manufacturing USA institutes as program participants

Economic Development Authority (Commerce) – working to ensure Institute eligibility for funding opportunities

Minority Serving Institutions – sharing institute value proposition with minority serving institutions and encouraging them to explore membership

ManufacturingUSA

Additional Opportunities

New Commerce-Sponsored Institutes

Public Service Awards

- Delivered $160M in Pandemic Projects
- WEAVE

14 Advanced Manufacturing Roadmapping Awards

New construction authority for specialized facilities and testbed

ManufacturingUSA

NIST – New Staff

Partnerships and Outreach Division

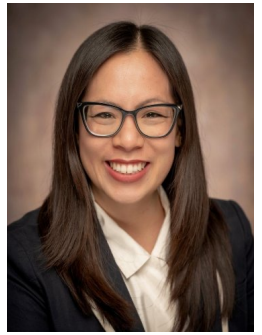
- Brad Conrad, Education and Workforce Development Manager
- Erin Rushing, Events and Outreach Specialist
- Shelly Pollard, Communications Specialist
- ***Coming soon:*** Michael Britt-Crane, Workforce Detailee



Strategy and Planning Division

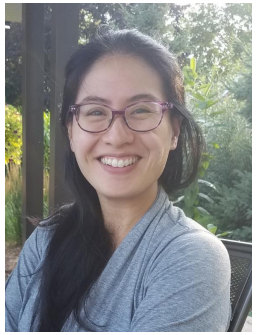
- Susan Ipri-Brown, Strategic Partnership Specialist
- Nancy Stoffel, Manager of Strategic Initiatives
- Kimmai Tran, Industry Analyst
- Amelia Stephens, AAAS Policy Fellow

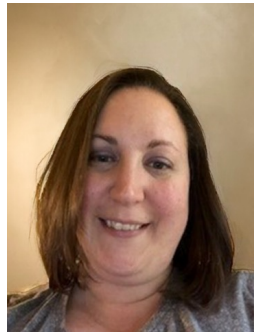





Program Operations Division

- Adrienne Cheng, Technical Program Manager
- Jorge Lamboy-Gonzalez, Technical Program Manager
- Cheryl Leonard, Competition Support Specialist
- Debra Auguste, Federal Fellow






ManufacturingUSA

USD(R&E)

Manufacturing USA Network Meeting
Department of Defense Agency Update

Office of the Secretary of Defense Manufacturing Technology Program

Tracy Frost
Director
Department of Defense Manufacturing Technology Program
Office of the Under Secretary of Defense
for Research and Engineering

April 2024
www.CTO.mil
www.DoDManTech.mil

Distribution Statement A: Approved for Public Release

DoD ManTech Program

MISSION

Anticipate and close gaps in manufacturing capabilities for affordable, timely, and low-risk development, production, and sustainment of defense systems.

DoD ManTech carries out its mission through programs in the Military Departments, participating Defense Agencies, and OSD

DoD Manufacturing Innovation Institutes are executed out of OSD with support from the Services

America Makes

MD

lift

AIM PHOTONICS

NEXTFLEX

affoa

biofabusa

ARM

BioMADE

Office of the Under Secretary of Defense for Research & Engineering - Critical Technology Areas

OUSD(R&E) Strategy Pillars

- Mission Focus
- Foundation Building
- Succeed through Teamwork

Critical Technology Areas

- *Hypersonics*
- *Directed Energy*
- *Space Technology*
- *Biotechnology*
- *Renewable Energy Generation & Storage*
- *Integrated Network Systems-of-Systems*
- *Future Generation Wireless Technology*
- *Integrated Sensing and Cyber*
- *Human-Machine Interfaces*
- *Quantum Science*
- *Trusted AI and Autonomy*
- *Microelectronics*
- *Advanced Materials*
- *Advanced Computing & Software*

OSD ManTech is advancing all 14 critical technology areas

OSD ManTech Investment Portfolio

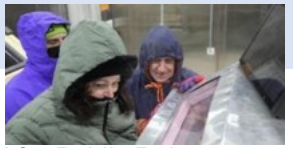
Investment Programs Under PE 0603680D8Z

- P680 – Manufacturing Science and Technology (MSTP)
- P350 – Manufacturing Innovation Institutes (MIIs)
- P351 – Manufacturing Education and Workforce Development

- ✓ Administer the Department of Defense (DoD) Manufacturing Technology Program
- ✓ Support the Office of the Under Secretary of Defense Research & Engineering's (OUSD(R&E)) critical technology areas
- ✓ Maintain a joint planning process and provide centralized guidance through the Joint Defense Manufacturing Technology Panel (JDMTP)
- ✓ Manage the OSD Manufacturing Science and Technology Program
- ✓ Oversee the Federal government's partnership with the DoD Manufacturing Innovation Institutes
- ✓ Lead the DoD's Manufacturing Education and Workforce Development (EWD) initiatives
- ✓ Collaborate across the Department and Federal Government to advance manufacturing in the United States

MIIs are a Unique Resource to Address DoD Manufacturing Challenges

COVID-19 Response	Hypersonics Challenge	Point of Need Challenge	Organic Industrial Base (OIB) Modernization
• DoD MIIs activated **1.4K members across 45 states** to address COVID-19 issues (FY20) • DoD awarded over $60.7M in funding for 20+ projects • Projects were **funded and initiated within 5 weeks**	Leveraging member network and government partners: • America Makes is advancing additive manufacturing for high temperature metals ($2.1M) • LIFT is addressing materials and manufacturing for hypersonic vehicles ($3M)	• Quick-turn solutions for forward-deployed forces in austere environments (FY23) • DoD invested ~$2.5M with **$700K industry partner cost share** • Panel of 13 **joint DoD judges** selected 6 projects from 5 MIIs • **9 months later, project teams demonstrated** technologies at the Cold Regions Research and Engineering Laboratory	• FY22 NDAA, Section 354, directs a Pilot Program on Digital Optimization of OIB Maintenance and Repair Operations • ManTech invested $2.5M to address dual-use applications and OIB needs • MII members submitted 104 proposals • Finalists will be selected in mid-January for February Shark Tank
Project Examples: • Novel Drug Delivery • Personal Protective Equipment Design Database • Pandemic Roadmap • CleanSURFACES Mat	**Project Examples:** • Thermal Protective Coatings • High Temperature Materials • Integrated Computational Materials Engineering	**Project Examples:** • Zero-Trust Cyber Security Platform for Machines • On-Demand Blood Program • Zero-Trust Cyber Security Platform for Machines	**Partner OIB Sites:** • Marine Depot Maintenance Command • Rock Island Arsenal • Ground Vehicle Systems Center



For more information…

DoD ManTech Program & Sponsored Institutes

www.DoDManTech.mil

Or on LinkedIn

Department of Defense Manufacturing Technology Program

OSD ManTech Management Team

- **DoD ManTech**
  - Tracy Frost, Director, Manufacturing Technologies (tracy.g.frost.civ@mail.mil)
  - Keith DeVries, Deputy Director (keith.a.devries2.civ@mail.mil)
  - Mark Jackson, Senior ManTech Advisor (mark.b.jackson.civ@mail.mil)
- **MSTP**
  - Justin McRoberts, Program Manager (justin.c.mcroberts.civ@mail.mil)
  - Steve Recchia, Deputy Program Manager
- **DoD MIIs**
  - Steve Luckowski, MII Network Program Manager (stephen.l.luckowski.civ@mail.mil)
  - MicKenzie Frith, DoD MII Network Executive Secretary (mickenzie.r.frith.ctr@mail.mil)

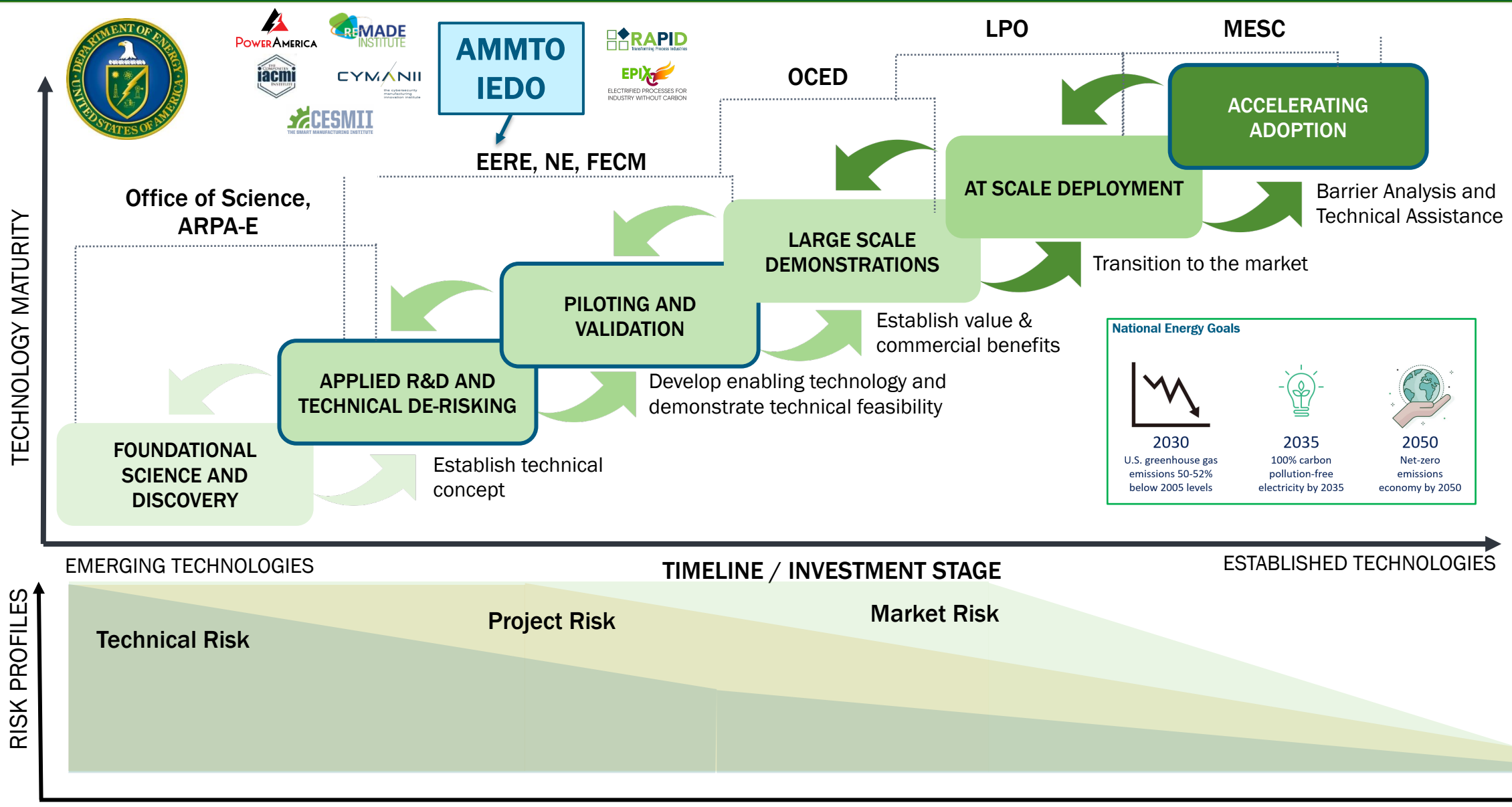
U.S. DEPARTMENT OF ENERGY

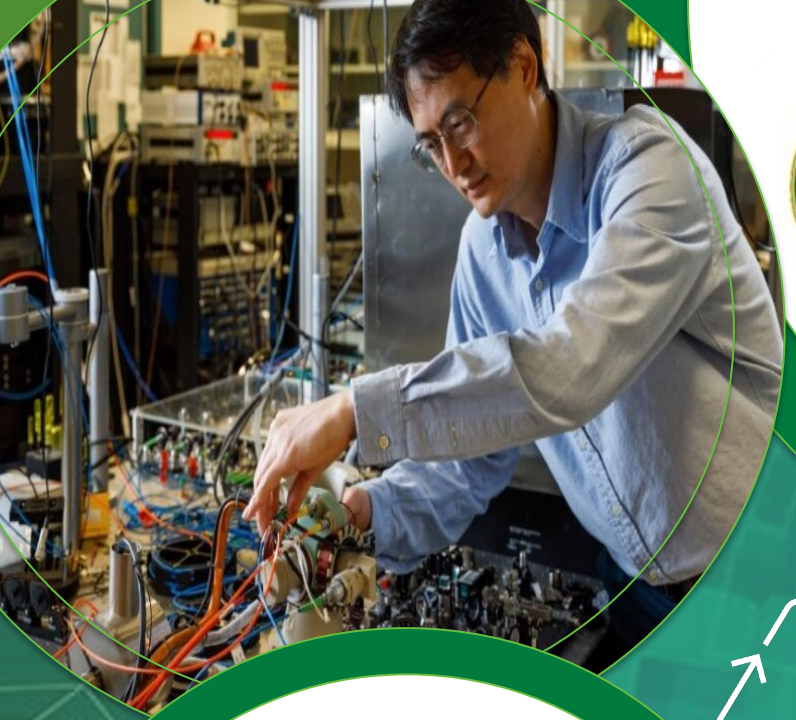
State of the Agency

Diana Bauer, Deputy Director
Advanced Materials and Manufacturing Technologies Office (AMMTO)
Department of Energy

April 2024

Bridging Innovation from Discovery to Deployment





U.S. DEPARTMENT OF ENERGY

Agency Updates

RAPID

PowerAmerica

The Composites iacmi Institute

CESMII THE SMART MANUFACTURING INSTITUTE

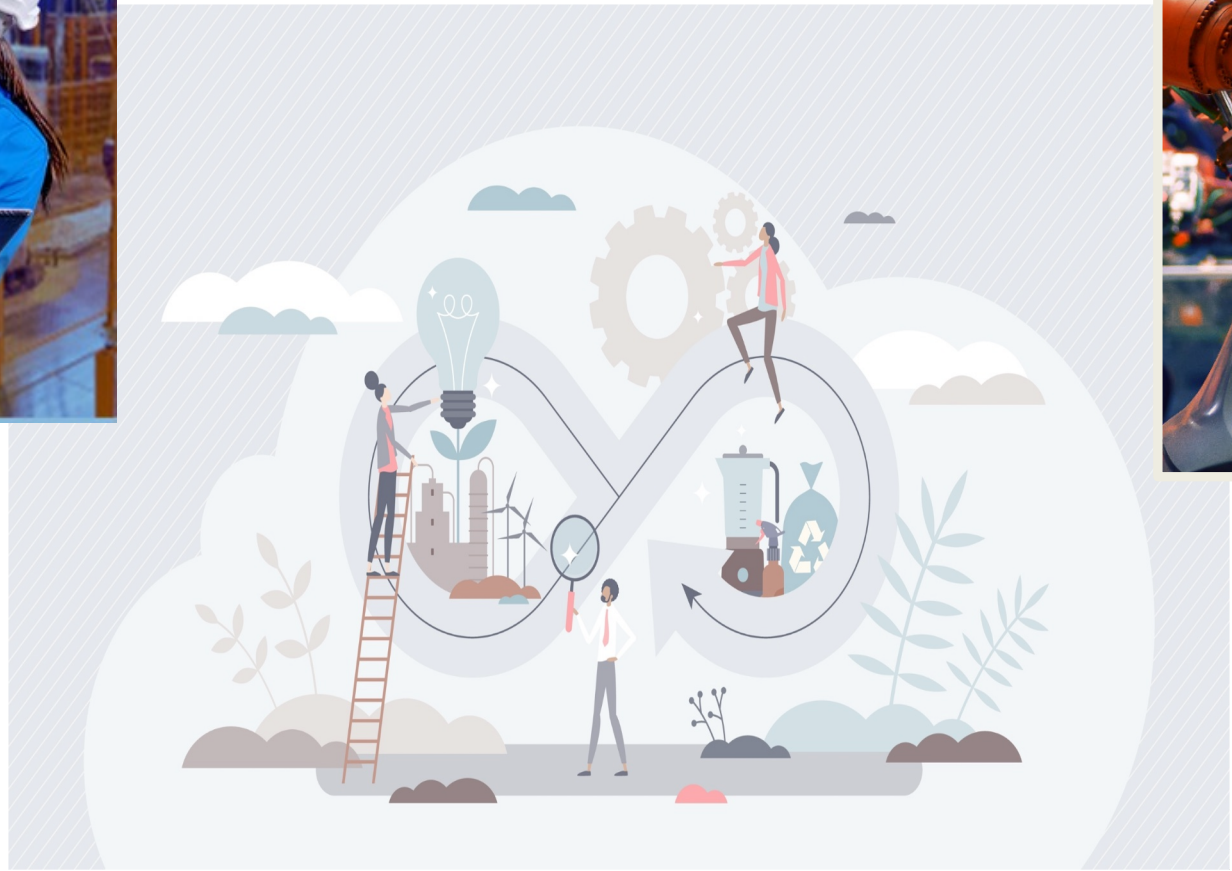
DOE Awards $3.6 Million to Strengthen Education and Workforce Development in the Domestic Manufacturing Industry

Advanced Materials and Manufacturing Technologies Capstone Research Fellowship

Let’s work together for our manufacturing future

Develop a diverse manufacturing workforce.

Create a collaborative network of stakeholders, working across the supply chain.



Scale up next-generation manufacturing technologies to achieve our clean energy goals.

Thank you

For additional information and to subscribe for updates:

www.energy.gov/eere/ammto

Manufacturing USA®

10 Years of Advancing U.S. Manufacturing

Leveraging Federal Funding Programs for Technology Advancement

Federal collaborations can impact moving research along MRL/TRL levels.

Moderator: Susan Ipri-Brown, NIST Office of Advanced Manufacturing

Janis Terpenny
National Science Foundation
Program Director

Bruce Kramer
National Science Foundation
Senior Advisor

Wade Cook
AIM Photonics
Executive Director

Jim Davis
CESMII
Program Oversight and
CIO Advisor

ManufacturingUSA

Manufacturing USA® is a national network created to secure U.S. global leadership in advanced manufacturing through large scale public-private collaboration on technology, supply chain and workforce development.

Agenda

- Janis Terpenny, NSF Program Director
- Panel
  - Wade Cook, AIM Photonics Executive Director
  - Jim Davis, CESMII Program Oversight and CIO Advisor
  - Moderator: Bruce Kramer, NSF Senior Advisor
- Q&A

NSF & Manufacturing USA Institute Win-Win Partnership Opportunities

Janis Terpenny
Program Director
jterpenn@nsf.gov

Opportunities to Partner

- Core programs & Solicitations
- DEAR COLLEAGUE LETTERS
- Panel reviewer
- Workshops
- Board, TAC, etc.

NSF Dear Colleague Letter: Aligning Fundamental Research & Education in Advanced Manufacturing with the Objectives of the Manufacturing USA Institutes (DCL 24-014)

- Joint Dear Colleague Letter between ENG, EDU and TIP Directorates
- NSF supports MRL 1-3 and Manufacturing USA MRL 4-7
- Institutes advise/monitor/assist proposals from academic researchers to move promising new ideas towards transition
- Proposals submitted to **Established** NSF Programs in the Directorates for Engineering (ENG), STEM Education (EDU), and Technology Innovation and Partnerships (TIP)
- Proposals compete within established programs using the review criteria of those programs
- 25 Programs linked in DCL, but applies to any program

Evaluating the Potential Wins of DCL 24-014

- NSF-funded opportunity to investigate high-potential, early-stage technologies that need fundamental research to prove feasibility.
- Institute technology plans, technology roadmaps, and project calls can identify research projects that justify Institute involvement.
- Institutes and member companies provide valuable knowledge, experience, facilities, and context to keep academic research on-track.
- Participating students become familiar with participating companies, increasing their attractiveness as potential hires.

Funding Mechanisms

- **Core/Unsolicited:** Two to four years; Individual/small collaborative teams: funds increase for collaboration
- **Solicitations:** Small to large funding size; multiple divisions/directorates can be involved
  - Special research calls – LEAP-HI, FM, CASIS TE/MB, EFRI, DMREF, NRI, …
  - Career – ERI, CAREER, BRITE, Trailblazer
  - Instrumentation & Infrastructure – MRI, CDS&E, CSSI
  - Centers – ERC, STC, IUCRC
  - Dear Colleague Letters – M3X TBI, MfgUSA, Supply Chains
- **Workshops/Conferences:** Focused events to review state of art, identify gaps and challenges, suggest paths forward, and build consensus

Some less-typical award types

- *GOALI:* stimulate collaboration between IHEs and industry
  - New in 2023: small businesses may receive funds from the award
  - Requires IP agreement between the parties
- *EAGER:* to develop preliminary data or evidence for a high-reward (transformative) idea; leads to a full proposal. Cultivate idea with PD first: we may ask for a full proposal
- *RAPID:* severe urgency regarding the availability of or access to data, facilities or specialized equipment, including quick-response research on natural or anthropogenic disasters and similar unanticipated events
- *International Collaborations:* co-review of proposals with investigators in two or more countries covered by agreements between NSF and foreign science organizations
  - UK, Israel, Ireland/Northern Ireland, Germany, Czech Republic, Switzerland, India, and others!

GOALI: **G**rant **O**pportunities for **A**cademic **L**iaison with **I**ndustry

- Basic research with strong academic-industrial collaboration
- Available NSF-wide as a specialized type of Proposal (or Supplement) that can be submitted to most programs
- Typical grant is 3-5 years and $100-150K per year.
- Requires an industrial partner (industry co-PI)
- Up to 1/3rd funds for eligible small business partner

NEW feature!

- Requires intellectual property agreement completed in advance of funding

Faculty & Students: Industrial collaboration, education and training

Industry: Access top university research capacity and talent

NSF: Catalyze transformative research & collaborations

Universities: Build pathways to new/stronger links with industry

https://new.nsf.gov/policies/pappg/23-1/ch-2-proposal-preparation#2F5

Research and Education Supplements to Existing Awards

- *REU:* up to two students in one year; $8,000/student; strongly encouraged to involve members of underrepresented groups, veterans, and first-generation college students
- *INTERN:* Non-Academic Internships for NSF Grad Students
  - Host organizations may include: Industry labs or R&D groups, Start-ups or small businesses, Government agencies and National Laboratories, Policy think-tanks, Non-profit organizations
  - Up to $55K for up to 6 months of internship
  - Need an Intellectual Property agreement between university & host
- *General:* Up to 20% of the original award, evaluated by the managing PD. Example: addition of data science/AI aspects to projects

Supplements for Non-Academic Research Internships for Graduate Students (INTERN) – Over 1,650 students supported since FY17

Host organizations may include:

- Industry laboratories or research and development groups.
- Start-ups or small businesses.
- Government agencies and National Laboratories.
- Policy think-tanks.
- Non-profit organizations.
- Museums, science centers etc.

Up to $55K for up to 6 months of internship @ Host

Funds for travel, tuition and fees, health insurance, stipend and temporary relocation costs, materials + Faculty co-mentoring

International students can participate

Governed by an Intellectual Property agreement between university and Host. NSF waives its IP rights

Grad Students: Access real world immersion	**Hosts:** Mentor and access a new generation of talent
NSF: Catalyze workforce Development	**Universities:** Build pathways to new/stronger external partnerships

~250+ INTERNs supported each year

A sampling of Hosts

INTERN DCLs & VIDEO

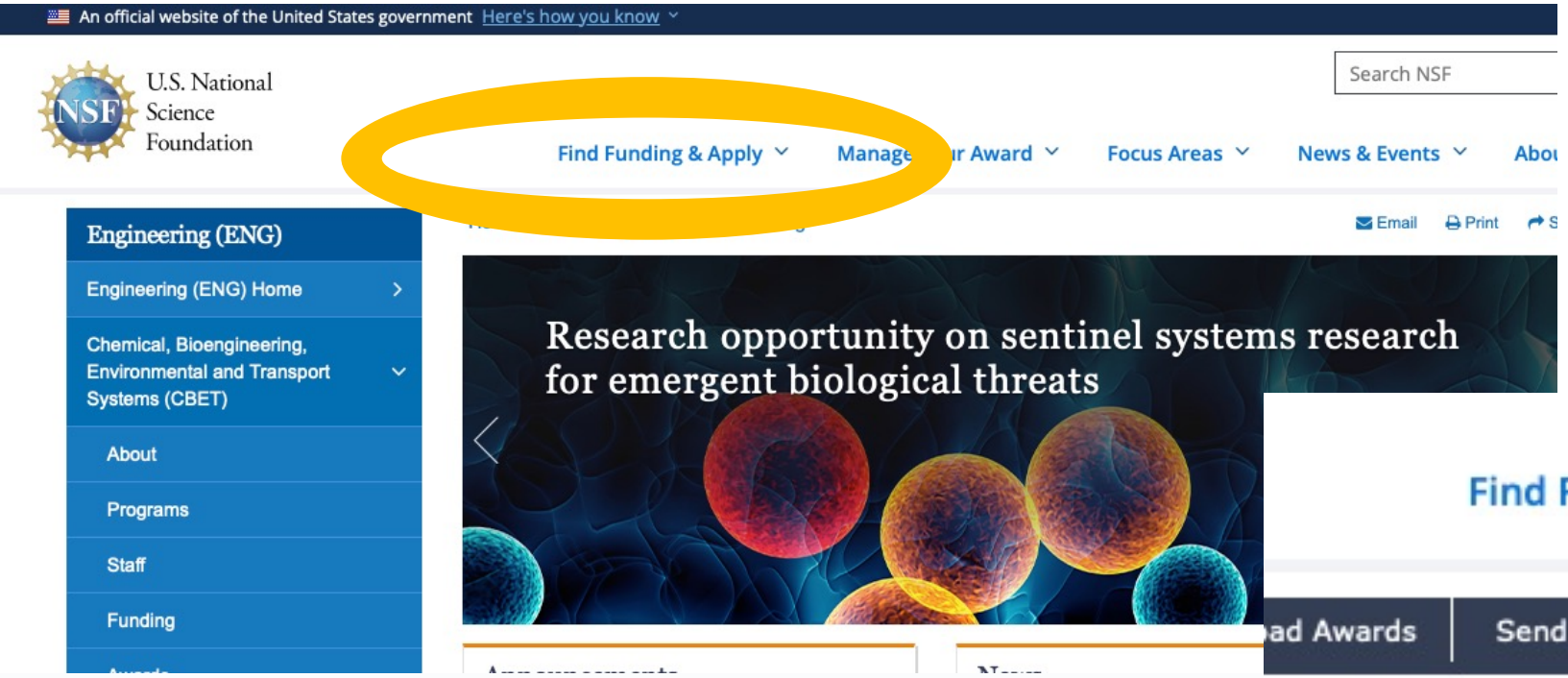
www.nsf.gov/INTERN

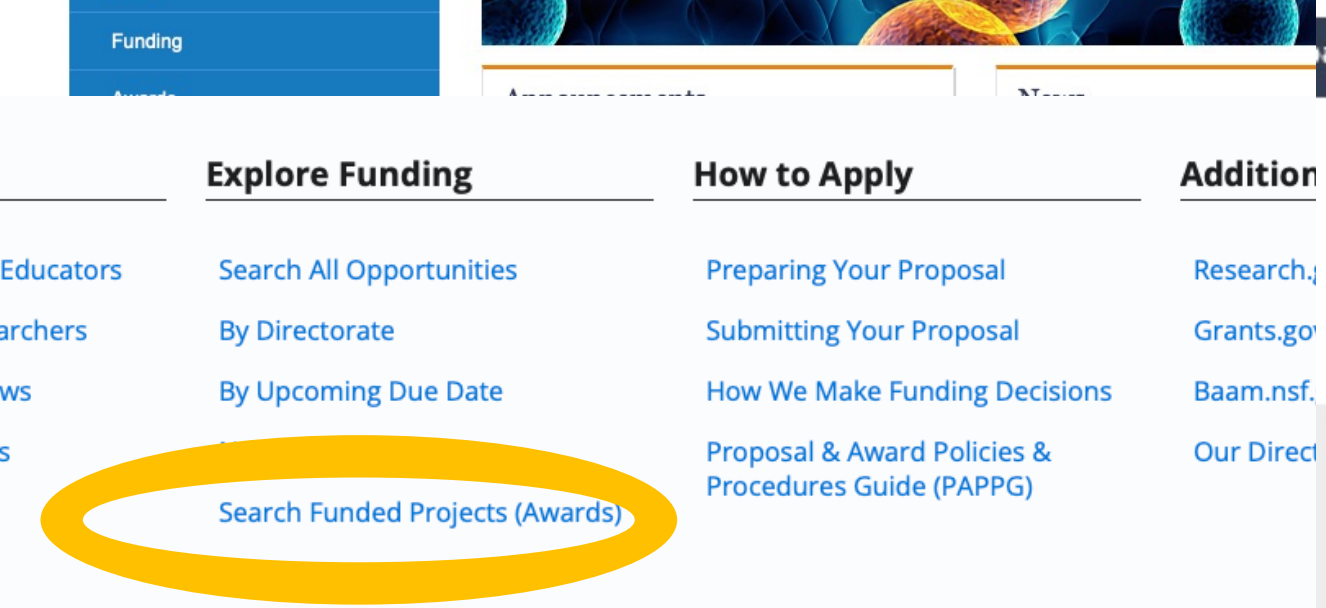
Examples of Education Funding (there are many!)

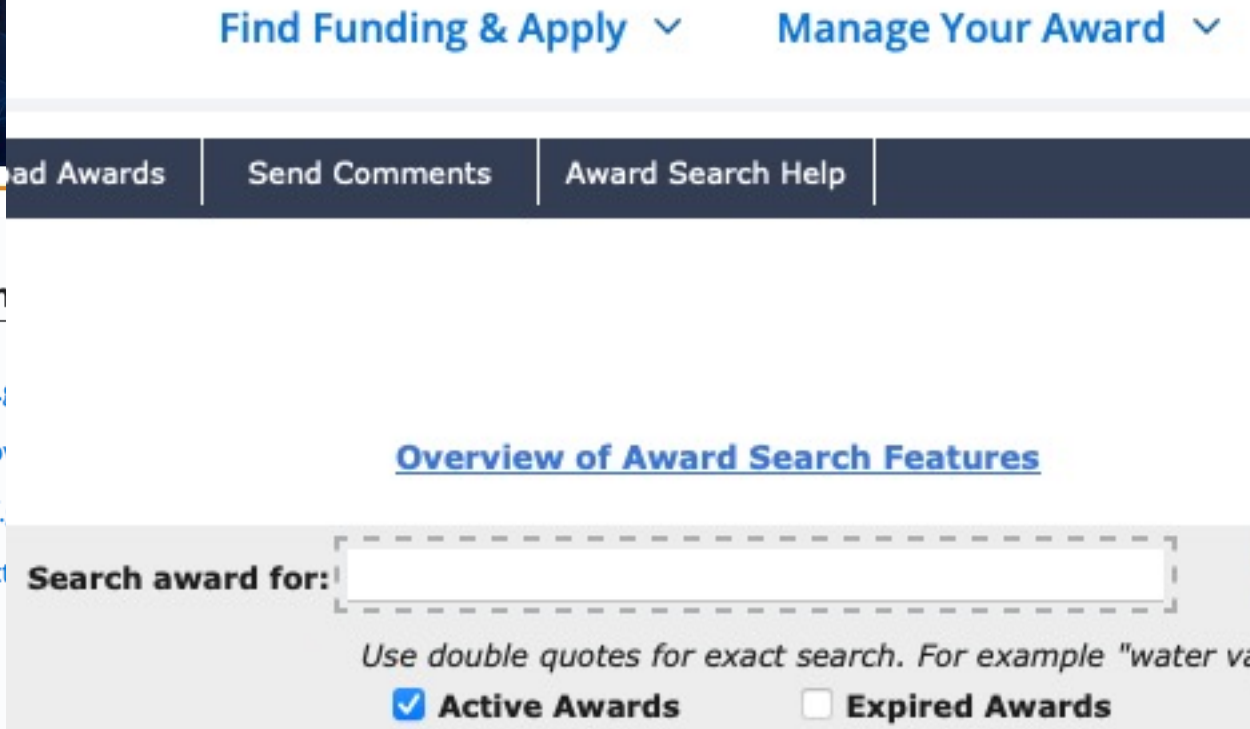
- *ATE* – Community College experiential learning
  Supports the education of technicians for the high-technology fields that drive our nation's economy. Involves partnerships between academic institutions (grades 7-12, IHEs), industry, and economic development agencies to promote improvement in the education of science and engineering technicians at the undergraduate and secondary institution school levels

- *ExLENT* – Technical skills training in emerging technology fields for reskilling or up-skilling
  Support experiential learning opportunities for individuals from diverse professional and educational backgrounds that will increase access to, and interest in, career pathways in emerging technology fields (e.g., advanced manufacturing, advanced wireless, artificial intelligence, biotechnology, quantum information science, semiconductors, and microelectronics)

Search Funded Projects … Insights into Program Fit







Next . . .

- Researchers within institute
  - ✓ Email Program Director 1-page white paper to discuss project ideas
  - ✓ Send bio and list of expertise/interests, and volunteer to serve as reviewer
- Institute leadership (CTO, Director, etc)
  - ✓ Request meeting to discuss areas of mutual interest
  - ✓ Add non-voting NSF program director to your TAC or Board

Manufacturing USA®

10 Years of Advancing U.S. Manufacturing




Break