NIST Visiting Committee on Advanced Technology (VCAT)

Dr. Laurie Locascio
Under Secretary of Commerce
for Standards and Technology
and Director of NIST

NIST National Institute of
Standards and Technology
U.S. Department of Commerce

October 25, 2022

Meeting Agenda

☑ **Call to Order and Roll Call**

☑ **Session I: Special Session**

➡ **Session II: Programmatic and Operational Updates**

- **NIST Update and Agenda Review**

- **Safety Update**

- **Budget Overview**

Extended Break (60 min.)

Session III: CHIPS Session

Session IV: Subcommittee Session

II. Programmatic Updates – continued progress on our priorities

Grateful Recognition

Dr. Gail Folena-Wasserman

Senior Vice President
Biopharmaceutical Development
Emeritus, AstraZeneca/MedImmune

Term ends January 29, 2023

Mr. David A. Vasko

Director of Advanced Technology
Strategic Development
Rockwell Automation

Term ends February 1, 2023

Credit: NIST

Mr. Jason Matusow

General Manager
Corporate Standards Group
Microsoft Corporation

Term began September 14, 2022

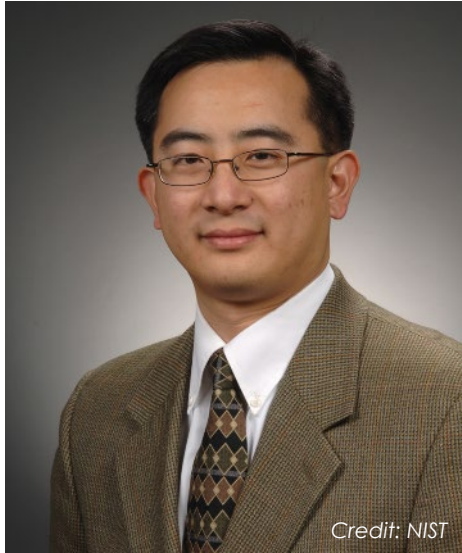# NIST Leadership Changes

Credit: Heather Evans/AAAS

Dr. Heather Evans

Director (acting)

Program Coordination Office

NIST Leadership Changes

Credit: NIST

Credit: LinkedIn

Dr. Eric K. Lin

Interim Director
CHIPS Research and
Development Program

Dr. Stephanie Hooker

Acting Director
Material Measurement Laboratory

NIST Priorities

CHIPS and Science Act of 2022

Credit: White House

Credit: White House

August 9, 2022

CHIPS Act at A Glance

Creating **H**elpful **I**ncentives to **P**roduce **S**emiconductors for America Act

CHIPS for America Fund
$50 billion allocated over 5 years

Financial Incentives Programs

$39 billion

Research and Development

$11 billion

**NSTC ● APMP ● MFG USA Institute(s)
NIST Metrology program**

Workforce Development

MEP Update

Credit: NIST

MEP National Network™ Strategic Plan for FY 2023-2028 in development

- Supply chain
- Workforce
- Innovation and Technology Adoption

Expanding MEP Advisory Board

- Seeking nominations

MEP Reorganization underway

- Prepare to support new programs and services with anticipated growth in funding

MEP National Network™ Supplier Scouting

- 259 items scouted from 12+ states and 25 industries
- MEP Centers from 30 states have identified 400+ viable U.S. suppliers
- $168 M in new business opportunities for U.S. manufactures
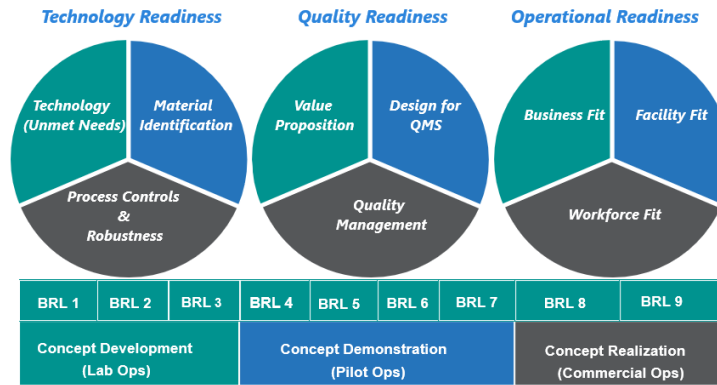
Key provisions of the CHIPS and Science Act

MFG USA Update

NI:MBL — The National Institute for Innovation in Manufacturing Biopharmaceuticals

**Annual Report
July 2022**

**BRL report
October 2022**

Biomanufacturing Readiness Level (BRL)

MANUFACTURING USA @ IMTS

25	5	2	7	11,715	5.7mi
Speaking Engagements	Main Stage interviews	MFG USA-focused sessions including IMTS Keynote	Informational videos and audio recordings	Smartforce Student Summit attendees	Avg. miles walked daily by network attendees

- MFG USA exhibited at the International Manufacturing Technology Show (IMTS)

- Largest and longest-running industry trade show with over 86,000 attendees

- Advanced Manufacturing National Program Office and 9 manufacturing innovation institutes attended

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Critical & Emerging Technologies

ARTIFICIAL INTELLIGENCE

Transparent, trustworthy AI and machine learning

BIOTECHNOLOGY

And engineering biology to impact the health, agricultural, and industrial sectors

CYBERSECURITY AND PRIVACY

To enable the development and deployment of emerging technologies

ADVANCED COMMUNICATIONS

(5G and beyond) and wireless technologies

ENERGY TECHNOLOGIES

Generation, storage, distribution, and secure, climate-friendly, efficient utilization of energy

QUANTUM INFORMATION SCIENCE

Leveraging quantum mechanics for the storage, transmission, manipulation, computing, or measurement of information

Artificial Intelligence (AI) Update

Credit: NIST

Credit: science.house.gov

Credit: NIST

NIST AI Risk Management Framework (AI RMF) 1.0 and AI RMF Playbook 1.0

Workshop #3 October 18-19

Testimony before House Committee on Science, Space, and Technology, Subcommittee on Research and Technology

Trustworthy AI: Managing the Risks of Artificial Intelligence

2nd Meeting of the National AI Advisory Committee (NAIAC)

wwww.ai.gov/naiac

Version 1.0 coming January 2023

September 29, 2022

October 12 – 13, 2022

Bioeconomy Update

Credit: White House

Credit: NIST

A new Executive Order on *Advancing Biotechnology and Biomanufacturing Innovation for a Sustainable, Safe, and Secure American Economy* was signed September 12, 2022

In July, NIST released a Research Grade Test Material (RGTM) for Monkeypox within 30 days in response to public health need, a record for NIST

Credit: CDC

Cybersecurity & Privacy Update

- Cybersecurity Framework 2.0

- Cybersecurity for IoT

- Software Supply Chain

OCTOBER 11, 2022

FACT SHEET: Biden-Harris Administration Delivers on Strengthening America's Cybersecurity

BRIEFING ROOM ▸ STATEMENTS AND RELEASES

HOME   IDENTITY & ACCESS MANAGEMENT   CRYPTOGRAPHY   EMERGING TECH & INFRASTRUCTURE
RISK MANAGEMENT   EDUCATION & OUTREACH   AUTOMATION & VULNERABILITY MANAGEMENT

NIST Cybersecurity Program History and Timeline

For 50 years, NIST—formerly the National Bureau of Standards (NBS), until 1988—has conducted cybersecurity research and developed cybersecurity guidance for industry, government, and academia. Since 1972, NIST has made extraordinary advancements in cybersecurity, leading the effort to the current state of technology that exists today.

To highlight many of these accomplishments and honor the hard work and dedication by NIST's cybersecurity staff, NIST has developed the NIST Cybersecurity Program History and Timeline. The timeline provides an overview of the major research projects, programs, and ultimately, NIST's cybersecurity history.

This history has been compiled by bringing together several sources of information, including written contributions from and interviews with current and former NIST employees, the Annual Reports on cybersecurity produced by NIST starting in 2003, and current and past NIST webpages and publications.

Also see our 50th Anniversary of Cybersecurity at NIST site for events, blogs, and other resources!

1972
NBS Establishes Computer Security Program

The National Bureau of Standards' (NBS) Institute for Computer Sciences and Technology establishes its computer security program.
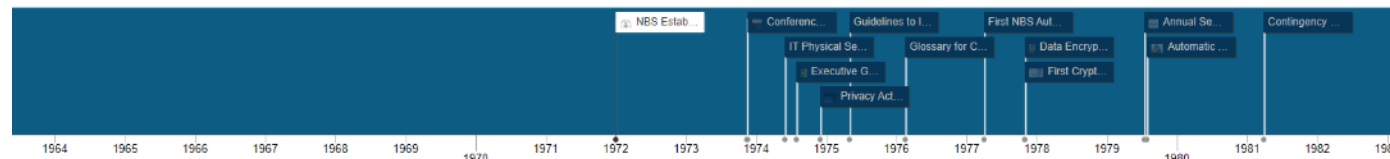
50 years of Cybersecurity at NIST
https://csrc.nist.gov/nist-cyber-history

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Advanced Communications Update

Advanced Comms Standards

NIST IR 8433: interagency report on advanced communications technology standards (August 2022)

Authored by the Advanced Communications Technology Working Group of Interagency Committee on Standards Policy (NIST chair)

Credit: NIST

https://nvlpubs.nist.gov/nistpubs/ir/2022/NIST.IR.8433.pdf

Credit: NCCoE

Open Radio Access Network (O-RAN) for 5G Spectrum Sharing Test Bed

Deployed on PSCR Demonstration Network and commissioned in August 2022

New opportunities for equipment vendors

Greatly expands research capacity, together with NIST's 5G Spectrum Sharing Testbed & National Broadband Interoperability Test Bed

Winners Announced!

Public Safety Innovation Accelerator Program 2022 (PSIAP-2022)

Credit: NIST

Climate and Energy Technologies

Laboratory Highlights

- Launch of the NIST Climate Community of Interest and White Paper
- Training for Improving Plastics Circularity Grant Program: awards to five universities
- New interoperability profile addresses the complexity in energy standards for modern technologies

Credit: R. Jacobson/NIST

External Recognition

- Samuel J. Heyman "Sammies" Service to America Medal finalists
- Sustainability, Energy, and Environmental (SEE) Ambassadors
- Department of Commerce Energy and Environmental Stewardship Awards

Quantum Information Sciences Update

Credit: K Dill, NIST

DC-QNet Announced June 27, 2022

Advanced quantum sensor: entangled matter-wave interferometer
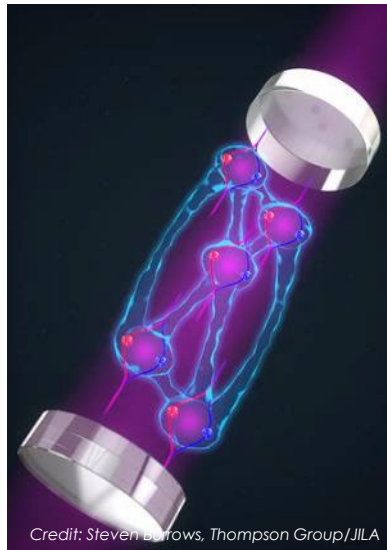
Credit: Steven Burrows, Thompson Group/JILA

Jun Ye - 2022 Breakthrough Prize in Fundamental Physics
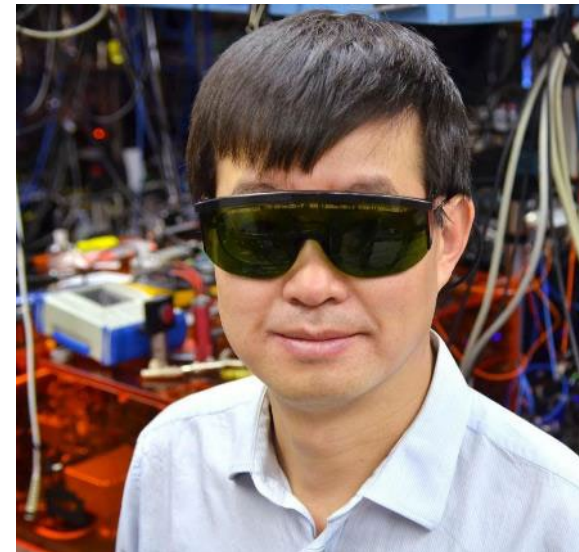

Adam Kaufman - New Horizons in Physics Prize from Breakthrough Foundation

NIST and Post-Quantum Cryptography

- NIST is developing post-quantum cryptography (PQC) encryption schemes that resist quantum and classical computers

- NIST's PQC challenge started in 2016, four selected algorithms announced July 5, 2022

- The four winning PQC algorithms will become part of new encryption standards

- 4th NIST PQC Standardization Conference: November 29 - December 1, 2022

Credit: Sungmin Kim/NIST
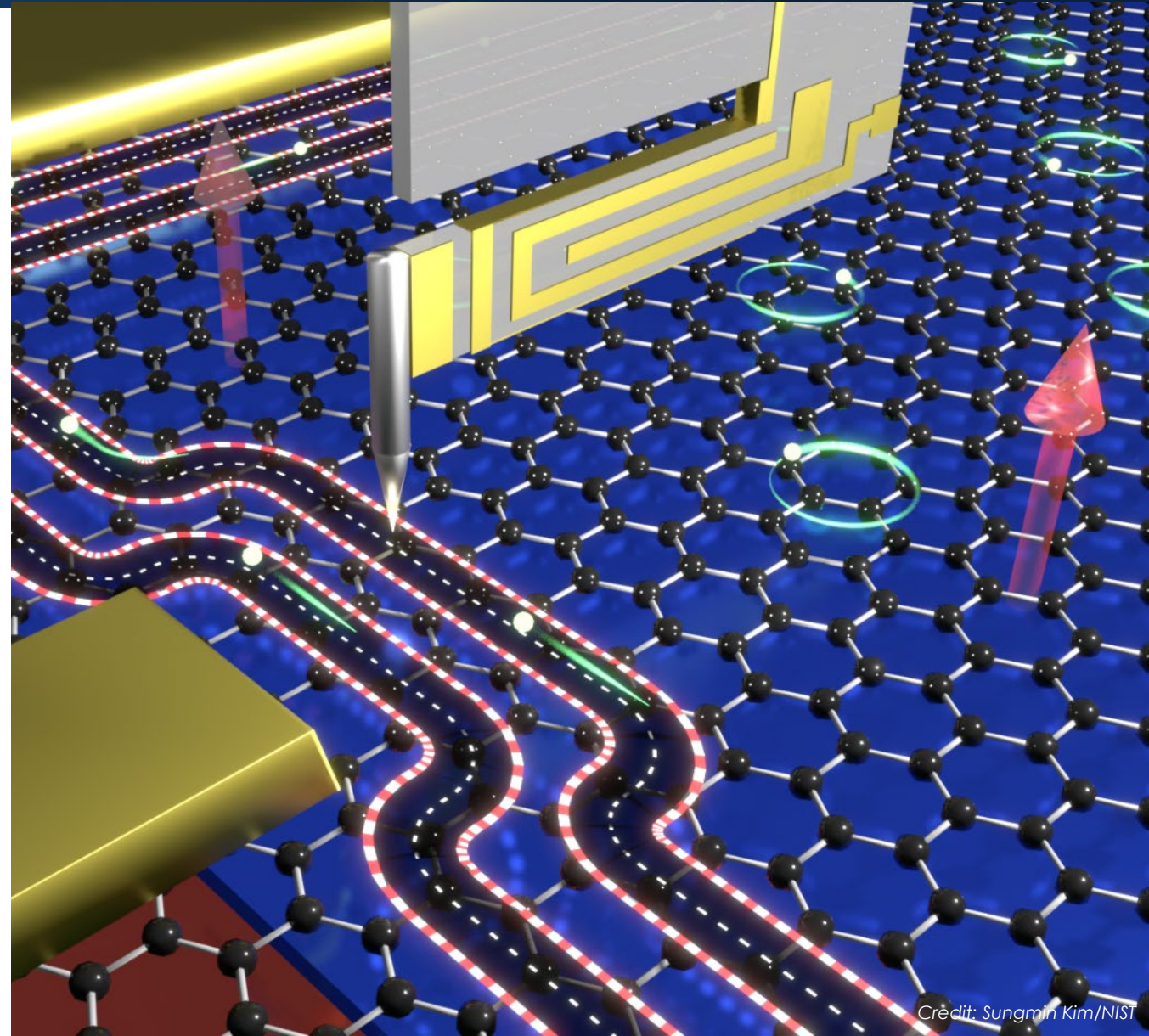
Standards Coordination Team Update

Dr. Jayne Morrow

Senior Advisor on Standards Policy

Office of the NIST Director

Credit: NIST

- National Security Strategy released on October 12, 2022

- NIST is working closely with the National Security Council on developing a more strategic approach to USG involvement in international standards

NATIONAL SECURITY STRATEGY

OCTOBER 2022

THE WHITE HOUSE
WASHINGTON
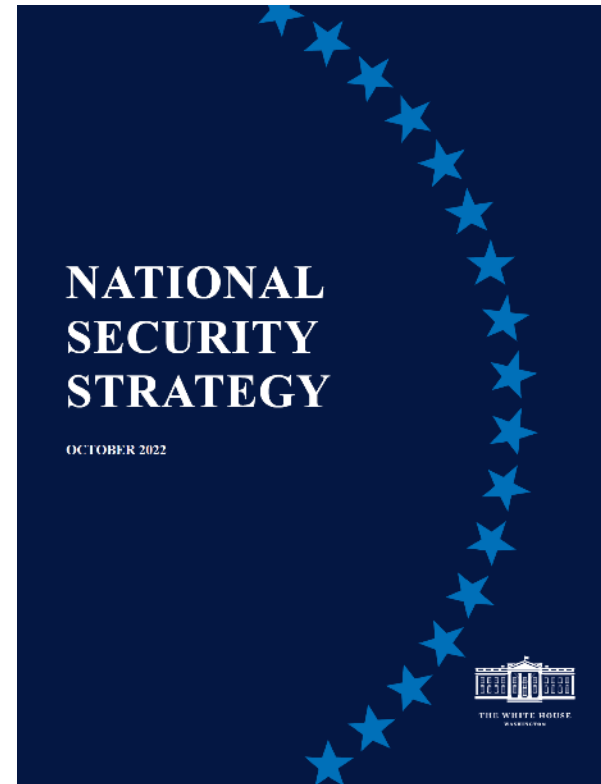
*"To ensure these investments support positive technological outcomes, we will partner with industry and governments in **shaping technological standards** that ensure quality, consumer safety, and global interoperability, and to advance the open and transparent standards process that has enabled innovation, growth, and interconnectivity for decades."*

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International Engagement in Standards

U.S.-EU Trade and Technology Council

Credit: © European Union

U.S. ● European Commission

OECD

U.S. ● Australia ● Austria Canada Denmark ● Finland France ● Germany Hungary ● Japan ● Korea ● Mexico Netherlands ● New Zealand ● Poland Russia ● Singapore Slovak Republic Slovenia ● Sweden Switzerland ● Turkey UAE ● UK ● European Commission

Ottawa 5

Credit: ODNI

U.S. ● Australia ● Canada New Zealand ● UK

Quad

Credit: White House Photo by A. Schultz

U.S. ● Australia ● India ● Japan

IPEF

Credit: USTR

U.S. ● Australia ● Brunei ● India ● Indonesia ● Japan Korea ● Malaysia New Zealand ● Philippines ● Singapore Thailand ● Vietnam

G7

U.S. ● Canada ● France ● Germany ● Italy ● Japan ● UK
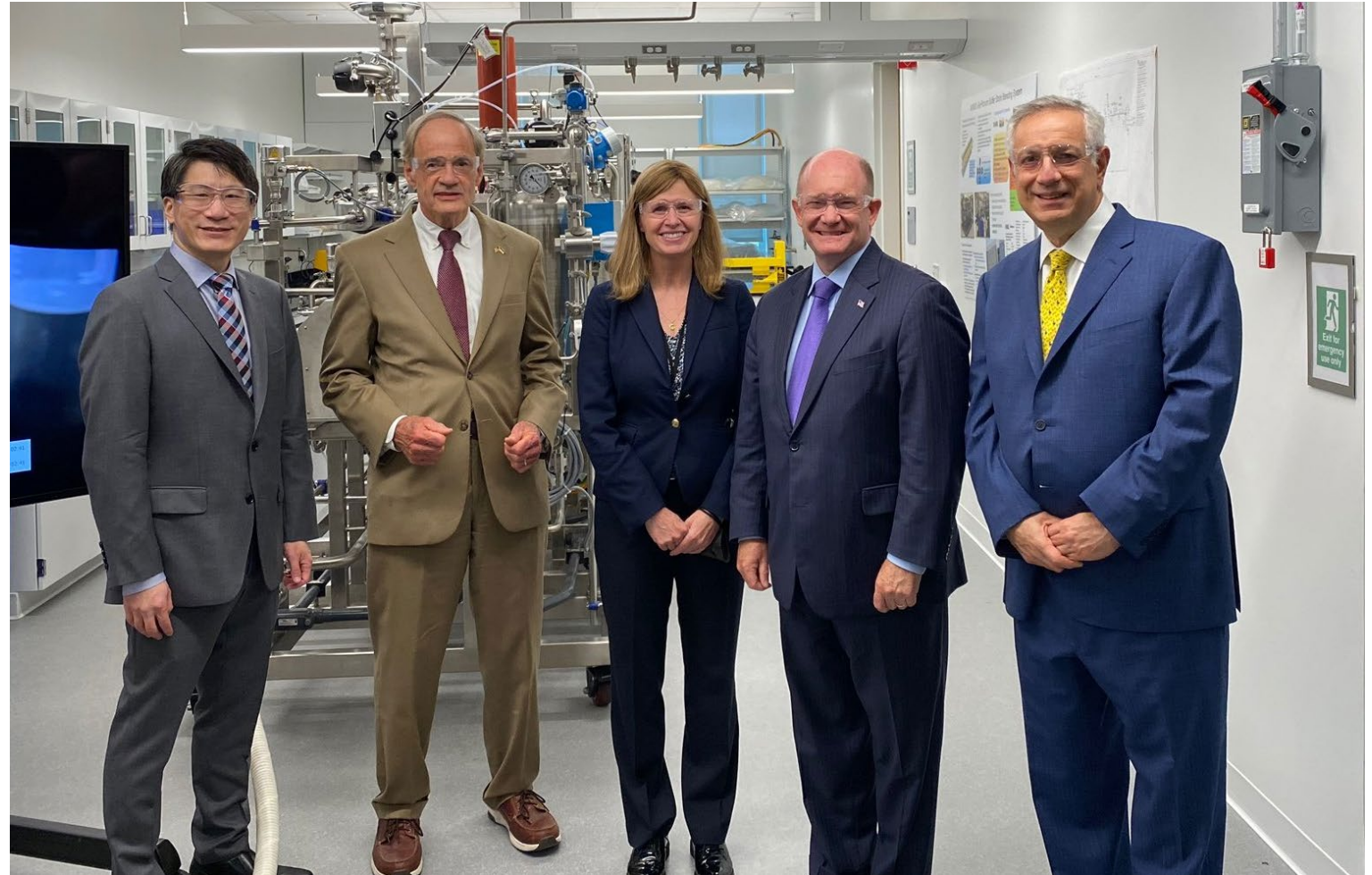
Engagements and Outreach

Engagements with Professional Societies

Engagements with Industry Stakeholders
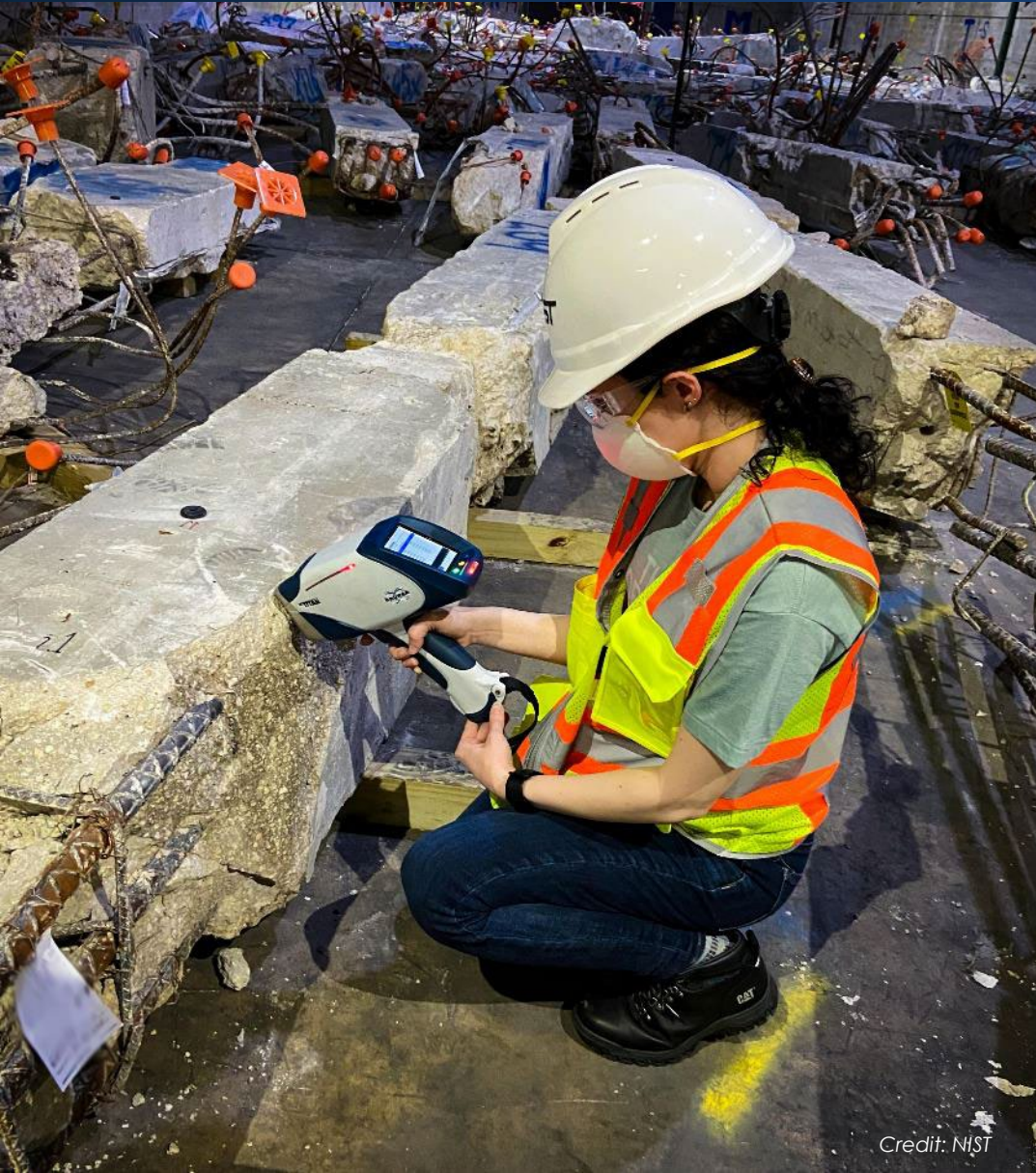
Engagement with Members of Congress

Visits to Manufacturing Institutes and Academic Partners

Credit: University of Delaware

Surfside Investigation Update

Credit: NIST

Background

- Champlain Towers South Condominium in Surfside, FL collapsed on June 24, 2021

- NIST was on-site June 25, 2021

- NIST Director established a National Construction Safety Team (NCST) on June 30
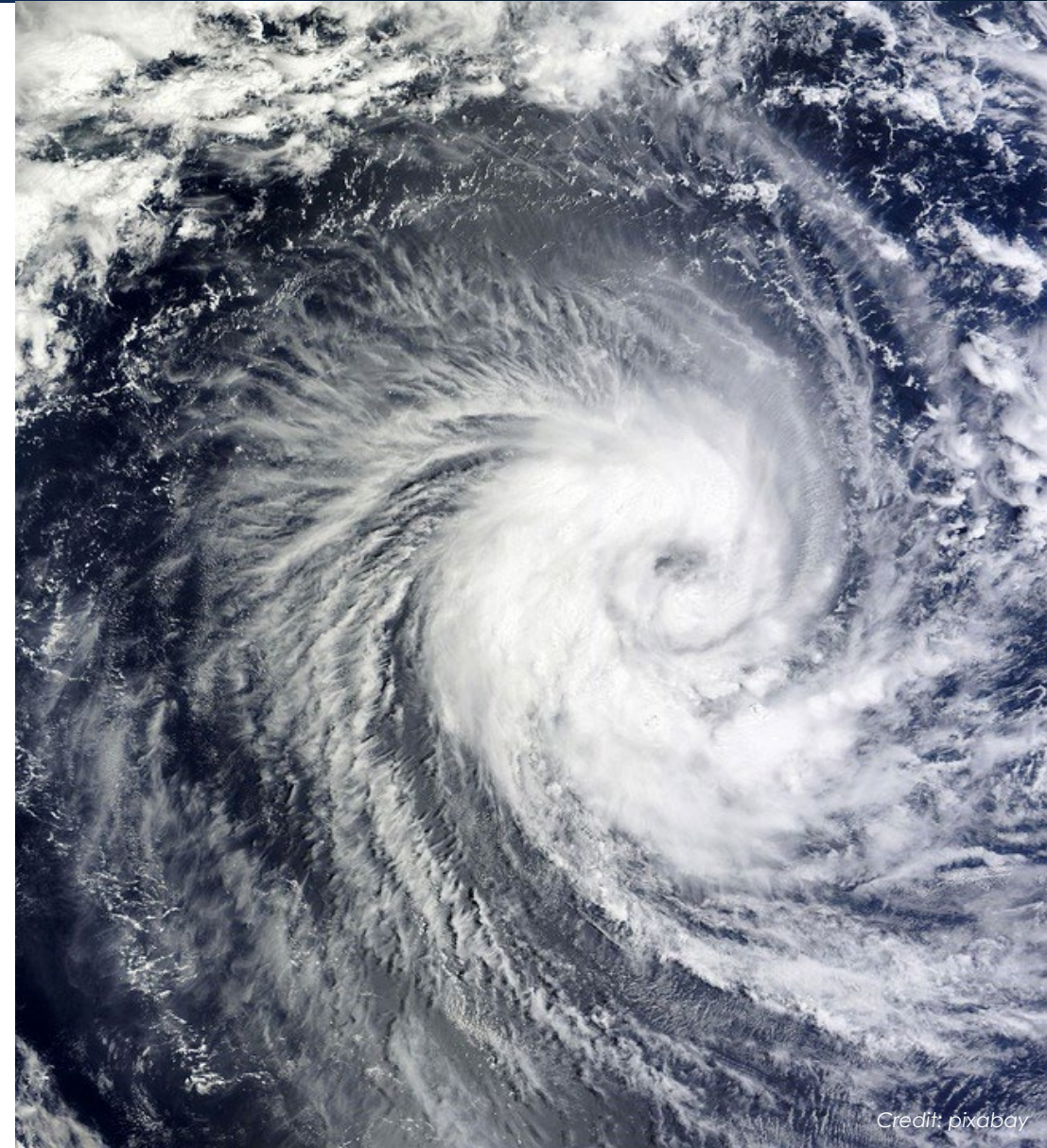
Updates

- Non-destructive site testing completed in July in advance of the sale of the property

- Laboratory analysis in progress

- NIST working with local authorities to establish safe testing conditions for evidence with additional warehouse space

- NCST Advisory Committee meeting October 19, 2022

Hurricane Ian Response

- National Windstorm Impact Reduction Program Monitoring of Effects of Hurricane Ian

- Hollings Manufacturing Extension Partnership Supplied $2M in Defibrillators for Hurricane Ian Relief within 24 hours

Credit: pixabay

NCNR Update

Confirmatory Order – August 1, 2022

- No cited notice of violation or civil penalties by NRC
- New requirements become part of the NIST Reactor License, including:
  - ➤ Employee concerns program
  - ➤ Employee rewards and recognition program
  - ➤ Nuclear safety culture monitoring panel
  - ➤ Problem identification and resolution program
  - ➤ Assessments by independent consultants
- Formal project management controls implemented
- Cross-NIST team reviews progress weekly and provides NIST-wide support

Planning for NCNR Restart

- NRC completing Technical Evaluation Report to inform their decision to restart the reactor
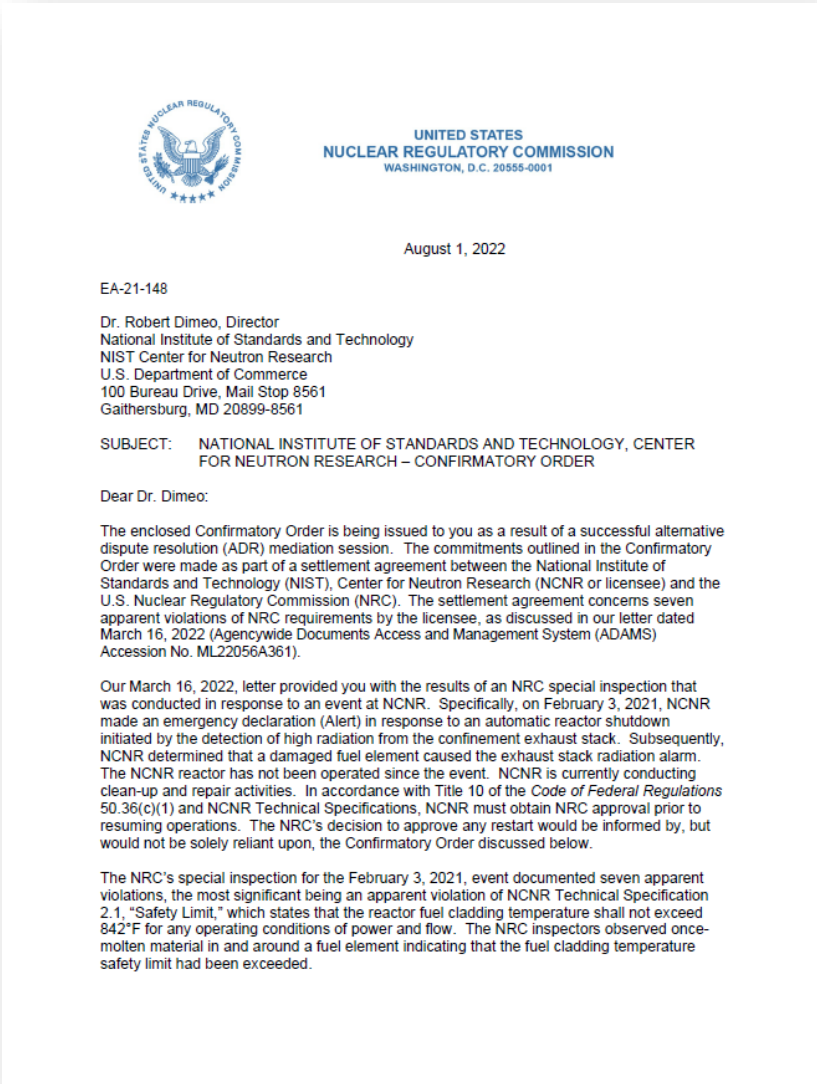
iEdison Redesign

- Redesigned online platform where organizations report their taxpayer-funded inventions

- Modernized user interface and new functionality and security features

- New site makes it easier to comply with the reporting requirements of the Bayh-Dole Act

- The legacy NIH system shut down and the new system, hosted by NIST, went live in August

DEIA Strategic Plan Kickoff

Dr. Fay Cobb Payton
NC State University

Dr. Sesha Joi Moon
Director of Diversity and Inclusion
U.S. House of Representatives

NIST DEIO

Virtual launch event October 11, 2022

- Remarks from NIST and DOC Leadership

- DEIA Keynote Address

- Overview of the plan and an introduction to our newly developed dashboard to track progress

- Panel discussion with voluntary employee organization representatives and DEIA Executive Sponsors

- Launch of iLEAD series

Return to Campus Update

Workplace Culture

- Gyms open in Boulder and Gaithersburg

- Food trucks on campus Tue through Thu

- Community Groups meeting in-person

  o Tennis club turned 50

  o Celebrating heritage months

Policies

- Policies implemented within Organizational Units

- Identifying successes and challenges

Meeting Agenda

☑ **Call to Order and Roll Call**

☑ **Session I: Special Session**

☑ **Session II: Programmatic and Operational Updates**

☑ • **NIST Update and Agenda Review**

➤ *Discussion*

• **Safety Update**

• **Budget Overview**

Extended Break (60 min)

Session III: CHIPS Session

Session IV: Subcommittee Session

Discussion