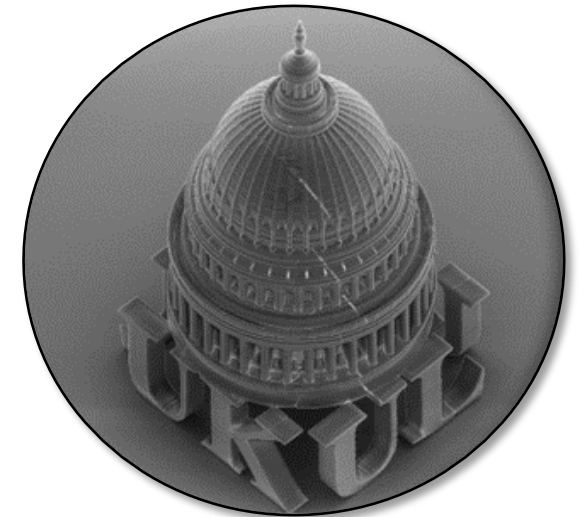


KY MULTISCALE

The NSF NNCI Multi-Scale Manufacturing & Nano Integration Node

“Converging Nanoscale Science and Engineering with Emerging Advanced Manufacturing Technologies”

**Year 9 NNCI Annual Meeting
University of Louisville
Louisville, KY
Oct 28-30, 2024**



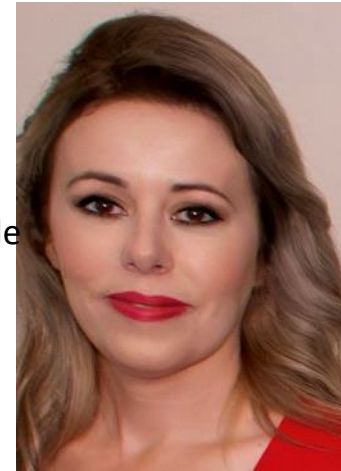
KY Multiscale – Annual Meeting Participants



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Theme - What are examples of programs and activities developed under NNCI that will be sustainable, independent of any continued NSF renewal funding, and what strategies or sources will be used to support them?

“While not fully funded them, NNCI has been the catalyst for many new successful and engaging initiatives.”

**Prof Karl Bohringer
NSF NNCI Yr 9 Meeting**

1) Our primary regional networking initiative

**Annual “Nano+X” Convergence Summit
where X is Additive Manufacturing (AM)**

KY Multiscale – 2024 NNCI Nano+AM Summit



- ~150 Attendees from Region and Nation
- 4 Nationally-Recognized Keynote Speakers
- 5 Invited Talks
- 30 Oral Presentations (2 parallel sessions)
- 40 Posters (some from REU students)
- Reception Social, Awards, Networking
- Tours of Core Facilities

2024 Distinguished Keynote Speakers



DR. ANDREW WELLS

Program Director - Advanced Manufacturing

National Science Foundation



DR. STEPHEN JESSE

Distinguished Research Scientist

Oak Ridge National Laboratory



DR. RAYNE ZHENG

Associate Professor - Department of Material Science and Engineering

University of California Berkeley



DR. COSTAS GRIGOROPOULOS

Distinguished Professor/ A. Martin Berlin Chair in Mechanical Engineering

University of California Berkeley

Cost of 2024 NNCI Nano+AM Summit

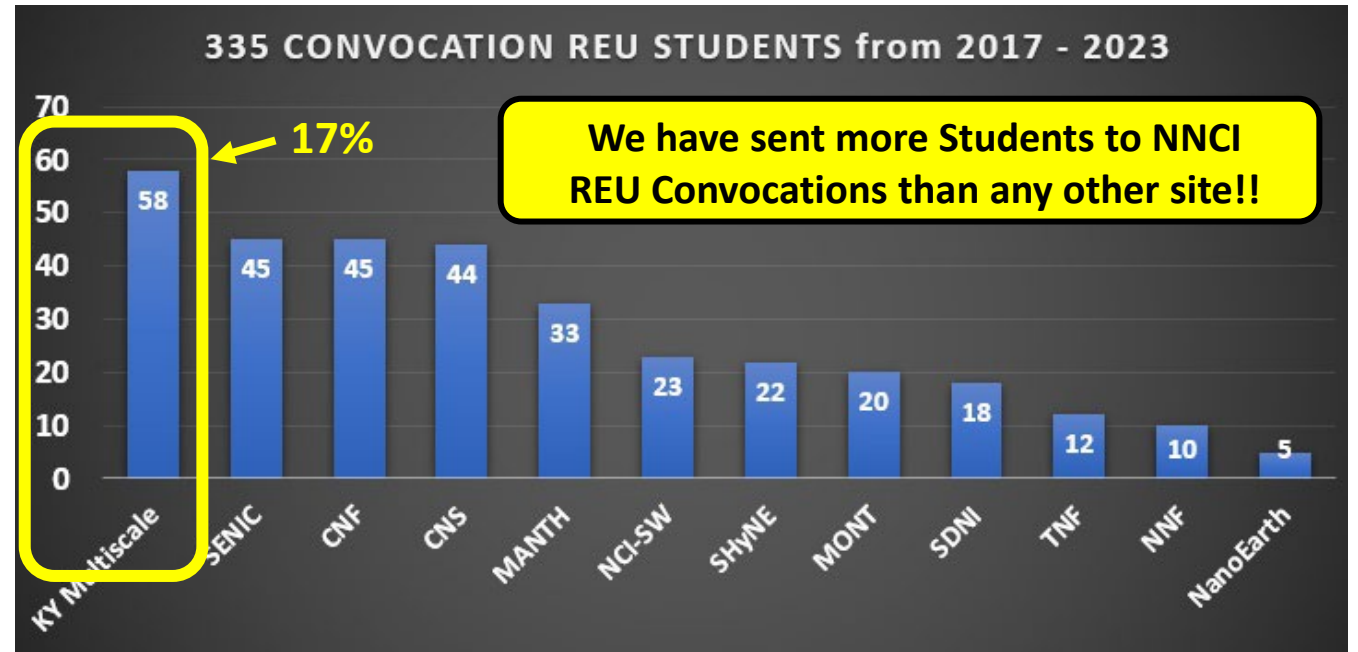
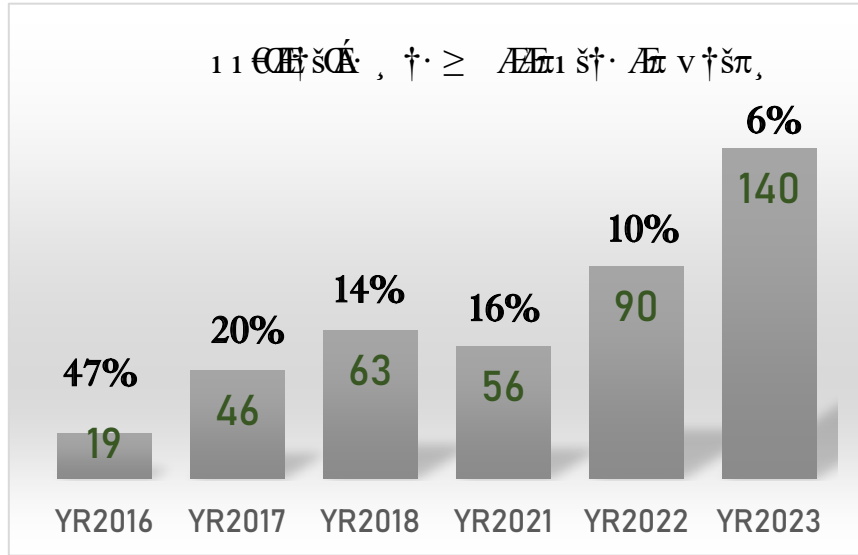
EXPENSES	\$29,000
Catering (2 Days + Reception)	\$17,000
Venue + Equipment Rental	\$1,100
AV Services	\$750
Supplies for Conference	\$1,000
Travel for Invited/Keynote Speakers	\$6,500
Online Resources (Web presence and Marketing)	\$950
Credit Card/Merchant Fees	\$1,700

REVENUE	\$20,450
Industry Sponsors (10)	\$6,500
Academic Sponsors (4)	\$3,500
Other Sponsors (3)	\$1,000
Registrations (145 participants)	\$9,450

We pick up the financial difference through our NNCI Award. However, if we increase the Sponsorships and/or Registration Fees, the conference could be self-sufficient. It is a lot of work, but gets easier with each offering.

2) Our popular Advanced Manufacturing REU Program (which would not have happened without UofL becoming a part of the NNCI)

KY Multiscale – Advanced Manufacturing REU



67

Participants over 7 Years



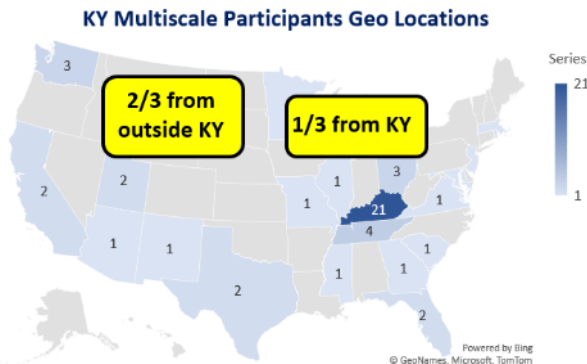
55%

Underrepresented Minorities in Eng



20%

1st Gen College Students



Conference Poster Presentations	139
Conference Oral Presentations	61
Journal Papers	2
Journal Covers	1
National Goldwater Scholarships	2
USA/Japanese NIMS Exchange Program	3

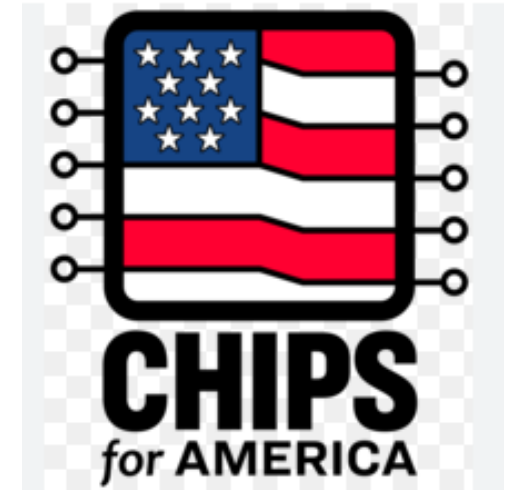
3) Unique Ways of Adding Tools and Capabilities

4) New Educational Programs that Leverage our Micro/nano Facilities

KY Multiscale – Micro/nano Training

Programs and Courses in Response to the CHIPS Initiative

- New UofL ECE UG Minor in Semiconductor Manufacturing
- New UofL ECE Graduate Certificate in Semiconductor Manufacturing
- New UofL 4-yr Applied Engineering Degree with a track for Semiconductor Manufacturing
- Expansion of the UK Computer Engineering Technology (CET) program into Semiconductor Manufacturing
- Transylvania University undergraduate Interdisciplinary Nanoscience course with UK



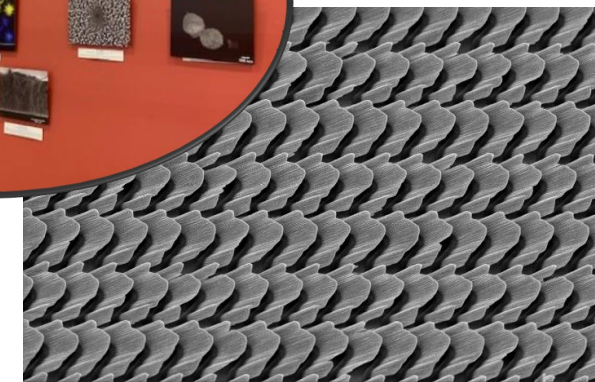
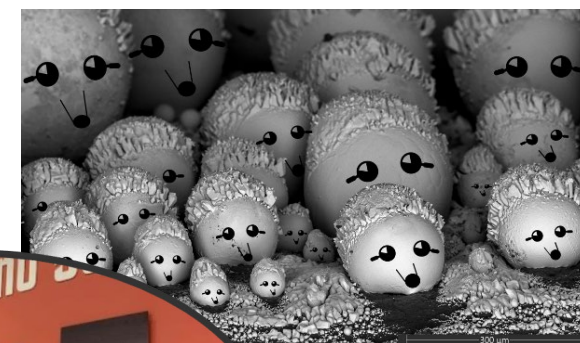
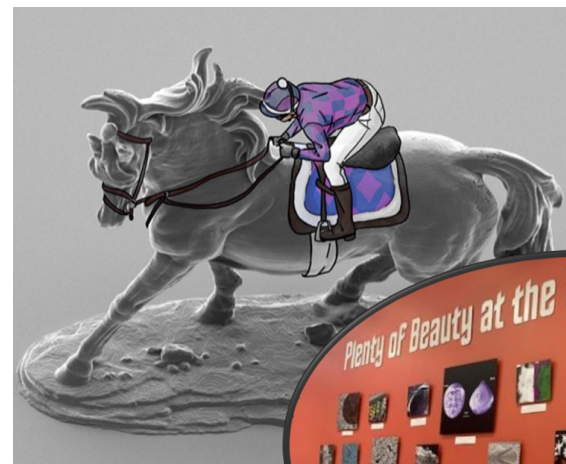
5) Nano Image Competition, Camps, Workshops, and Days

KY Multiscale – Nano Days and Nano Images

Nano Days Activities



Nano Image Competition



KY Multiscale – Camps and Workshops

NanoSIMST

nano@stanford

2024 NanoSIMST

Nanoscience Institute for Middle School Teachers

Come join us for a PAID workshop:

- In-person: June 24 - June 27, 2024
- Virtual: July 15 - July 19, 2024

[Apply Now](#)


SELECTED TEACHERS WILL:

- LEARN NANOSCIENCE**
Learn from experts across our nationwide, National Nanotechnology Coordinated Infrastructure (NNCI).
- ACTIVE PARTICIPATION**
Dive into engaging STEM activities that can be done in your classroom.
- DISCOVER RESOURCES**
Find out about amazing resources for your classroom, including NCISS aligned lessons, simulations, virtual field trips, and more!

*We will provide classroom kits, a \$500 stipend upon completion of the workshop and an additional \$300 for classroom implementation!

LEARN MORE & CONNECT:

[nanoSIMST website](#) | dmcuban@stanford.edu
[@nanostanford](#) | [nano@stanford.edu](#)




Additive Camp

ADVANCED MANUFACTURING WITH SCANNING AND 3D PRINTING

SUMMER CAMP

This three day program will teach participants how to create their own personalized figurines/ DnD miniatures featuring 3D scans of their own face, while educating them on the future of additive manufacturing.

JULY 23RD - JULY 25TH

9AM-4PM

AGES 11-17

\$159 PER PARTICIPANT

LUNCHES & SNACKS PROVIDED!

FOR ADDITIONAL INFORMATION, CONTACT:
amist@louisville.edu
 502.852.0848

VISIT US ONLINE AT:
www.louisville.edu/AMIST



UL ADDITIVE MANUFACTURING INSTITUTE OF SCIENCE & TECHNOLOGY

Vacuum Workshop by Kirk Lesker University



Panel Slide

Panel 3 Topic - What role do community/technical colleges play in your education and workforce development strategy and what role should they play in a future infrastructure network?

Examples and Thoughts from KY Multiscale

1. New Eng Tech Programs at UL and UK with Semiconductor Manufacturing Tracks

UL - New UofL 4-yr Applied Engineering Degree with a track for Semiconductor Manufacturing (1st 2 years at Community College)

UK - Expansion of their Computer Engineering Technology (CET) program into Semiconductor Manufacturing

2. Recruiting Com/Tech College Students into our REU Programs

KY FEEDER SCHOOLS – Elizabethtown CC, Somerset CC, Jefferson Com and Tech College

EXTERNAL SCHOOLS – Cosumnes River CC (CA), Diablo Valley CC (CA), Citrus CC (CA)

3. Marketing our Seed Program and Summit to the Com/Tech Colleges

4. Involving Eng Tech Faculty in our Advisory Board and Nano+AM Summit Org Com

5. Pending NSF ExLENT Proposal for Eng Tech Internships in Cleanroom

