

# **NIST-SIM** **Engagement** **Technical** **Cooperation &** **Capacity** **Building**

**Andrew Conn**

**International and Academic Affairs  
Office**

**National Institute of Standards and  
Technology (NIST)**



# How does NIST engage with NMI/DI partners through SIM?



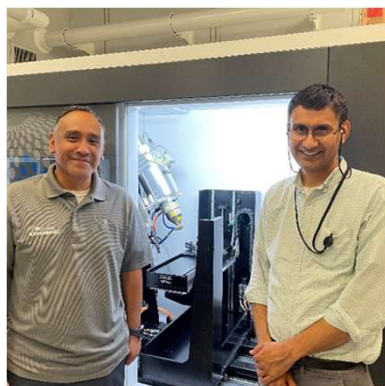
- **Guest Researcher projects**
  - Visiting researchers from the NMI/DI community work together with NIST experts on projects of mutual interest and benefit
- **Subject-specific training events**
  - Events led by NIST staff focusing on specific measurement topics
- **Grant Funding**
  - Financial support to partner organizations to implement defined activities supporting the global metrology community
- **Special projects (material and equipment support)**
  - In unique cases, NIST can provide material support to enable projects addressing new and emerging needs

# Guest Researchers NIST-SIM Engagement Opportunity



**Sandra da Silva & Youssef Bacila Sade (INMETRO)**

“Reference materials for improved reproducibility in omics-based measurements used by the gut metabolomics microbiome community”



**Bala Muralikrishnan & Octavio Icasio Hernández (CENAM)**

“Machine learning-based techniques for error mapping X-ray Computed Tomography Systems”



**Dinis Camara, Bob Hanisch, and Itzel Dominguez (CENAM)**

“Tools for the digitalization of reference material certificates”



**Crystal Campbell (BSJ), Keith Gillis, and Sherry Sheckels**

“Thermal expansion coefficient for liquid volume measurements”



Visiting researchers spend an average of 6 months at NIST



Projects yield peer reviewed publications, improvements in new and existing standards, and many other achievements of mutual benefit to NIST and the visiting researcher’s home institute

# Grants Measurement Science and Engineering Research Grant Program



## AmericasQI (2020)

Project aimed at facilitating activities led by SIM's MWGs supporting members as they work to enhance existing measurement services and seek international recognition of their measurement capabilities

Total funding - \$200,000



## SIM School (2024)

Training event focused on providing technical instruction to staff from SIM's active members (full financial support for two staff from each member NMI).

Total funding- \$228,000

# Fundamentals of Metrology 22-26 May 2023

*Special thanks to NIST's  
Office of Weights and  
Measures*



11 students from an equal number of SIM member organizations attended this weeklong training. The course utilizes a series of hands-on training modules unpacking core concepts of metrology and “tools of the trade”.

The course will be offered again in 2024; an announcement and application will be circulated during the latter half of November.

## Exercises and Lecture topics:

- Quality Assurance
- Rounding Expanded Uncertainties and Calibration Values
  - Assignment and Adjustment of Calibration Intervals for Laboratory Standards
- Ensuring Traceability
- Preparation of Calibration Certificates
- Assignment of Uncertainty
- Process Measurement Assurance Program



# Acknowledgements

- Claudia Santo
- Lucas Di Lillo, Marina Gertsvolf and all members of the SIM School organizing committee
- Special thanks to Biju Patla and the NIST T&F Group
- NIST Guest Researcher Hosts
- WG Chairs and Deputy Chairs



**Andrew Conn**

**International and Academic Affairs Office**

**National Institute of Standards and  
Technology (NIST)**

**[andrew.conn@nist.gov](mailto:andrew.conn@nist.gov)**



**Thank you!**