# Collaborating at a Distance: the *How Can NIST Help* effort

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

# Meeting the Challenge

Credit: NIST

*Today I'm calling on all of you to help do something that NIST does better than anyone in the world and help America to address that uncertainty through our collective scientific and technical talent. NIST has risen to many challenges throughout the years, from the world wars, to 9-11, to addressing the Deepwater Horizon oil spill.*

*NIST is an amazing concentration of a broad array of scientific and technical expertise. It is time for us to aim that tremendous potential at the enormous COVID-19 crisis that is now consuming the entire world. How can we apply our talents in measurements, standards, AI, simulation, engineering, logistics, automation, mechanical systems, chemistry, communications, and many other areas to address the challenges brought about by this pandemic?*

*I am asking each of you to consider what NIST might do to help the world fight the corona virus.*

# Collaboration Team

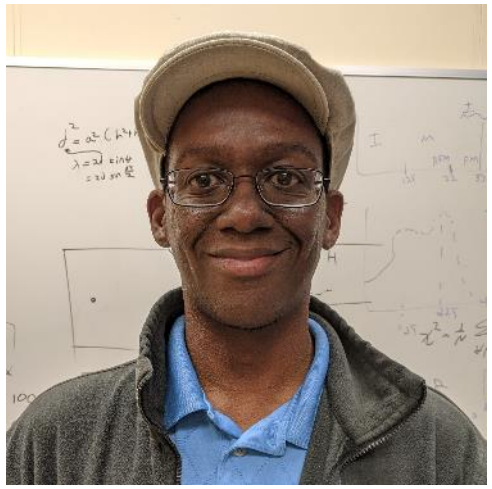
Heather Evans (PCO)

Nick Barbosa (MML)

Sarah Hughes (CTL)

Michelle Stephens (PML)

Carmen Martinez (EL)

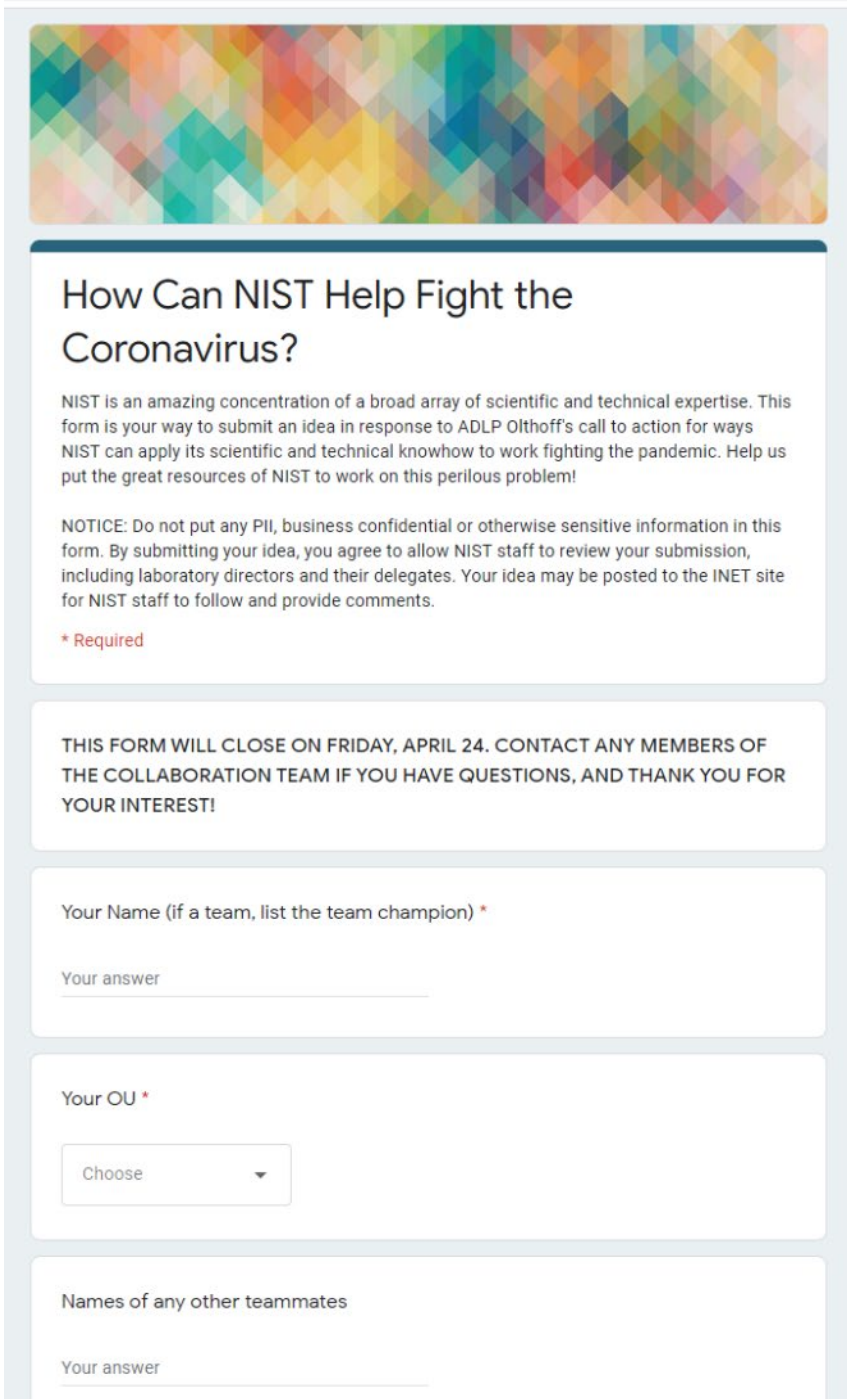


William Ratcliff (NCNR)

Elham Tabassi (ITL)

# How Can NIST Help?


1. Idea Generation
2. Information Sharing
3. Collaboration
4. Action



How Can NIST Help Fight the Coronavirus?

NIST is an amazing concentration of a broad array of scientific and technical expertise. This form is your way to submit an idea in response to ADLP Olthoff's call to action for ways NIST can apply its scientific and technical knowhow to work fighting the pandemic. Help us put the great resources of NIST to work on this perilous problem!

NOTICE: Do not put any PII, business confidential or otherwise sensitive information in this form. By submitting your idea, you agree to allow NIST staff to review your submission, including laboratory directors and their delegates. Your idea may be posted to the INET site for NIST staff to follow and provide comments.

* Required

THIS FORM WILL CLOSE ON FRIDAY, APRIL 24. CONTACT ANY MEMBERS OF THE COLLABORATION TEAM IF YOU HAVE QUESTIONS, AND THANK YOU FOR YOUR INTEREST!

Your Name (if a team, list the team champion) *

Your answer

Your OU *

Choose

Names of any other teammates

Your answer

## Idea Submission Criteria

**Has the promise of a significant impact within weeks or a few months*

**Can be accomplished either by telework or with limited on-site presence*

**If on-site work is required, it must be possible safely and with limited environmental conditions*

Your submission should address:

1. What is the idea?
2. What outcomes and impacts are expected?
3. What personnel and resources are required?
4. What is the expected timeline?

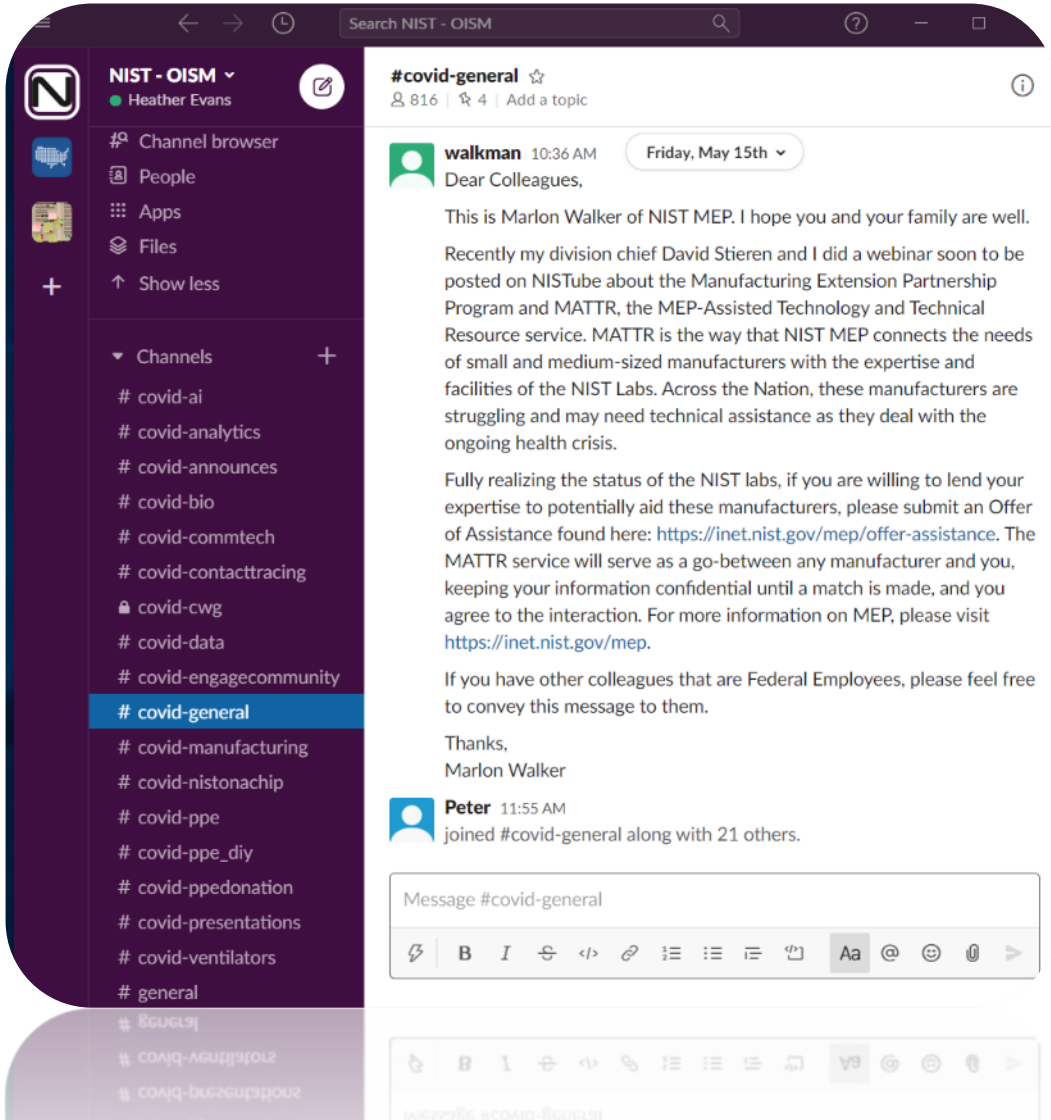
# Ideas Summary


Idea Submission Form open for **4** weeks

**75** submissions

Responses from across all **6** laboratories

# Collaboration and Information Sharing




GoToMeeting

Webex Meetings

BlueJeans by Verizon

Trello

ReadyTalk

# Seminars

- The COVID Impact on Community Colleges
- National Science Foundation Response to COVID-19
- The MEP Response & Opportunities for Engagement
- Underpinning COVID-19 Detection Measurements
- Electronic Contact Tracing Efforts

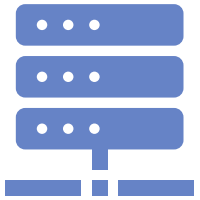
# Mission and Purpose

Credit: Christian Gidlöf, Public Domain

# Actions

www.nist.gov/coronavirus

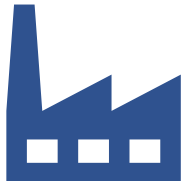
# Main Themes



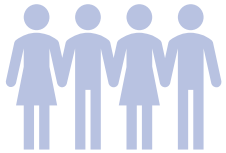
**ML/AI, Data and Analytics**

**Personal Protective Equipment**

**Manufacturing & Industry**



**Biological Measurements**

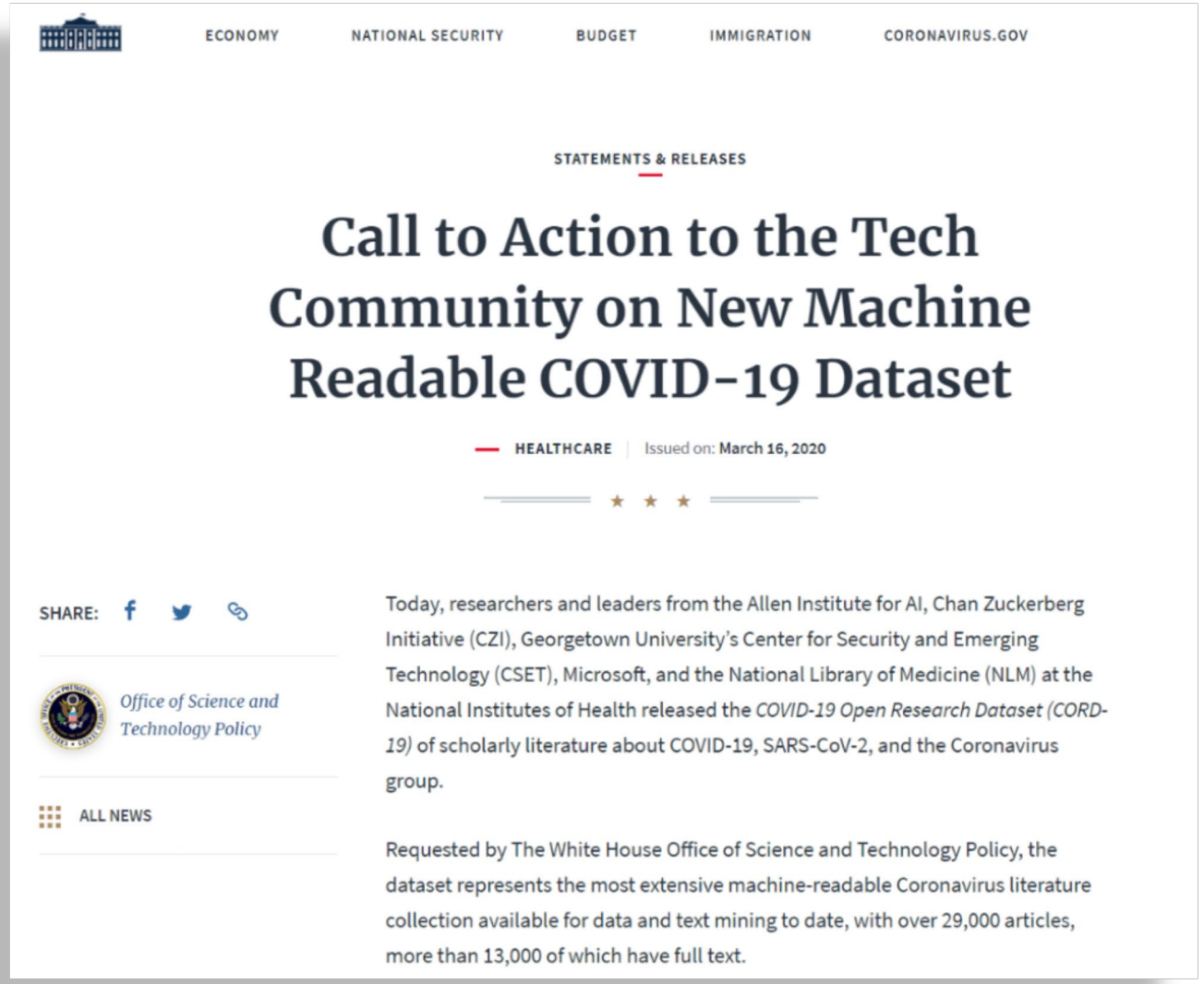


**Volunteering & Engagement**

**Energy & Environment**

**Wireless Innovations**

# ML/AI, Data and Analytics



ECONOMY NATIONAL SECURITY BUDGET IMMIGRATION CORONAVIRUS.GOV

STATEMENTS & RELEASES

## Call to Action to the Tech Community on New Machine Readable COVID-19 Dataset

HEALTHCARE | Issued on: March 16, 2020

★ ★ ★

SHARE:

Office of Science and Technology Policy

ALL NEWS

Today, researchers and leaders from the Allen Institute for AI, Chan Zuckerberg Initiative (CZI), Georgetown University's Center for Security and Emerging Technology (CSET), Microsoft, and the National Library of Medicine (NLM) at the National Institutes of Health released the *COVID-19 Open Research Dataset (CORD-19)* of scholarly literature about COVID-19, SARS-CoV-2, and the Coronavirus group.

Requested by The White House Office of Science and Technology Policy, the dataset represents the most extensive machine-readable Coronavirus literature collection available for data and text mining to date, with over 29,000 articles, more than 13,000 of which have full text.

**COVID-19 Data Repository**
https://covid19-data.nist.gov/

**NIST Scientific Indexing Resource**
https://randr19.nist.gov/

**NIST COVID-19 Resource Registry**
https://covid19-registry.nist.gov/

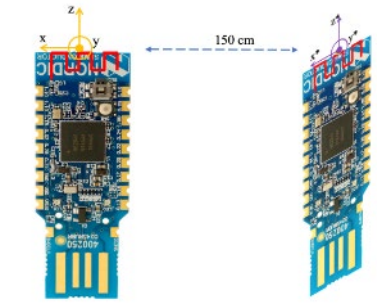
**Curated Archive cord19-cdcs-nist**
https://github.com/usnistgov/cord19-cdcs-nist

**Research Project to Apply ML *(in progress)***

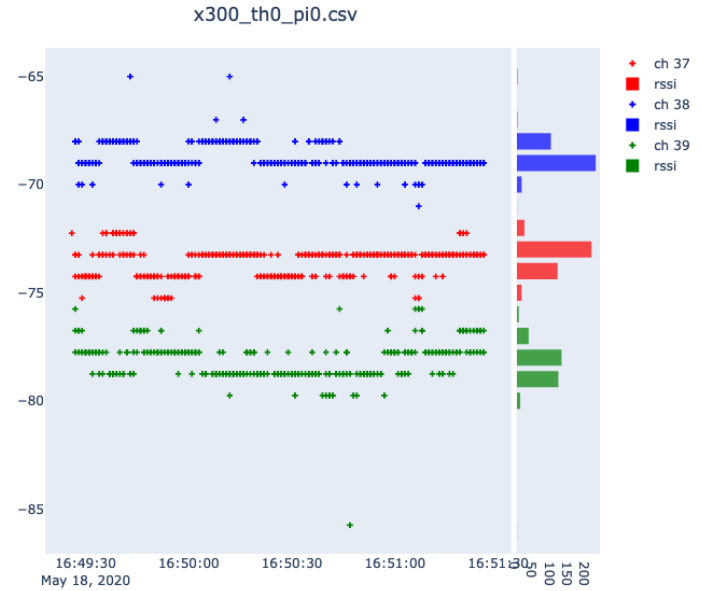
**TREC-COVID *(presentation to follow)***

# Exposure Notification

Image credit: Christine Daniloff, MIT




Credit: S. Nam, N. Moayeri, M. Keller (NIST)




- Privacy & cybersecurity
- Performance & accuracy using BlueTooth®
- Other modes of accessibility, e.g. populations without smart phones

https://www.nist.gov/itl/iad/mig/nist-tc4tl-challenge

*Engagement with many groups:*

PACT

Google

COVID WATCH

LINCOLN LABORATORY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

DRAPER

# Manufacturing & Industry



Credit: Aaron Urbas


Credit: NIST

MEP National Network™

# Wireless Innovations

**Spectrum Load**:

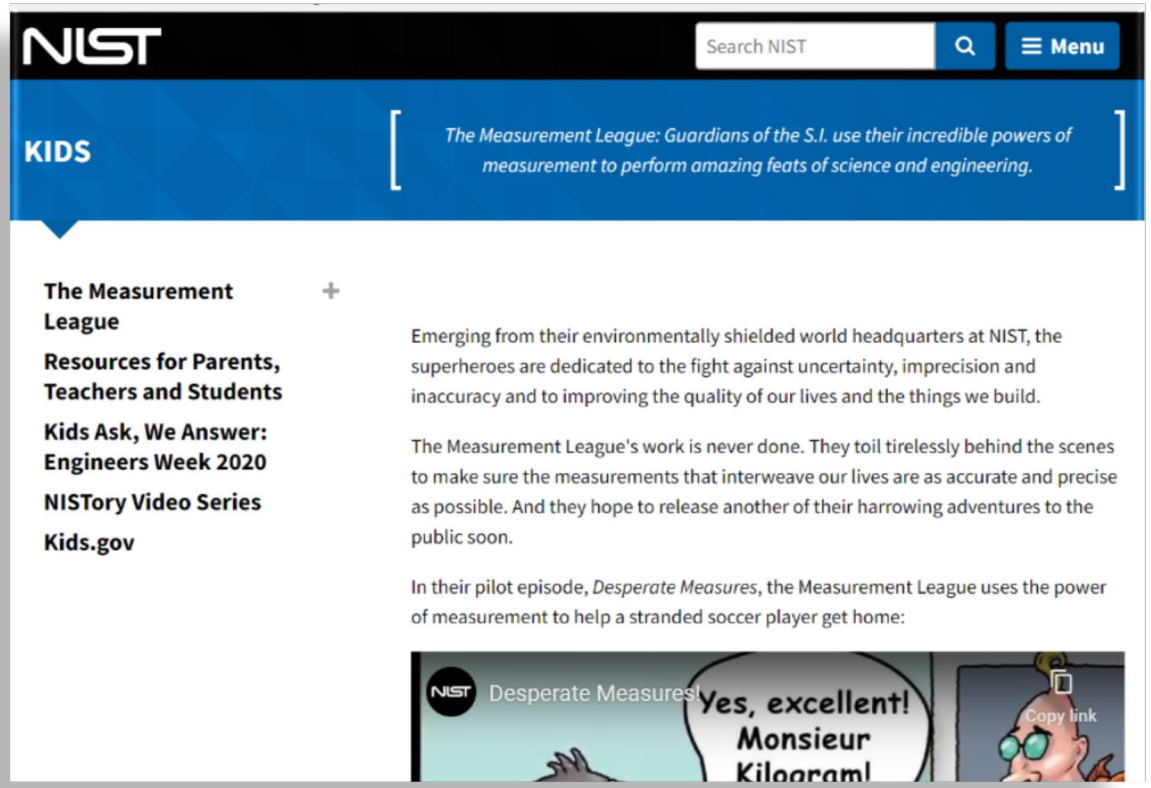
- collecting data on spectrum occupancy, traffic load, and the number of devices/networks operating
- develop scenarios for future testing
- support more resilient communication networking

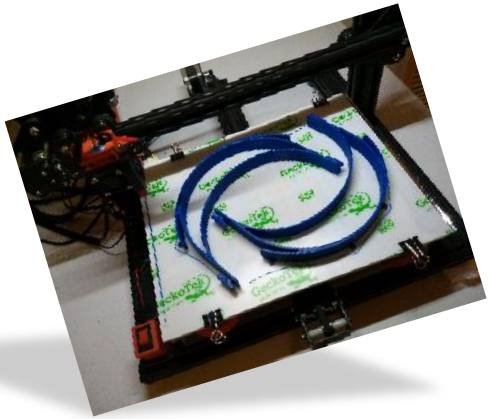
Credit: NIST CTL

**Wifi to Monitor Respiratory Function:**

- exploring the feasibility of implementing a software update to wireless routers or base stations
- non-contact respiratory monitors in home and medical environments

# Volunteering & Engagement



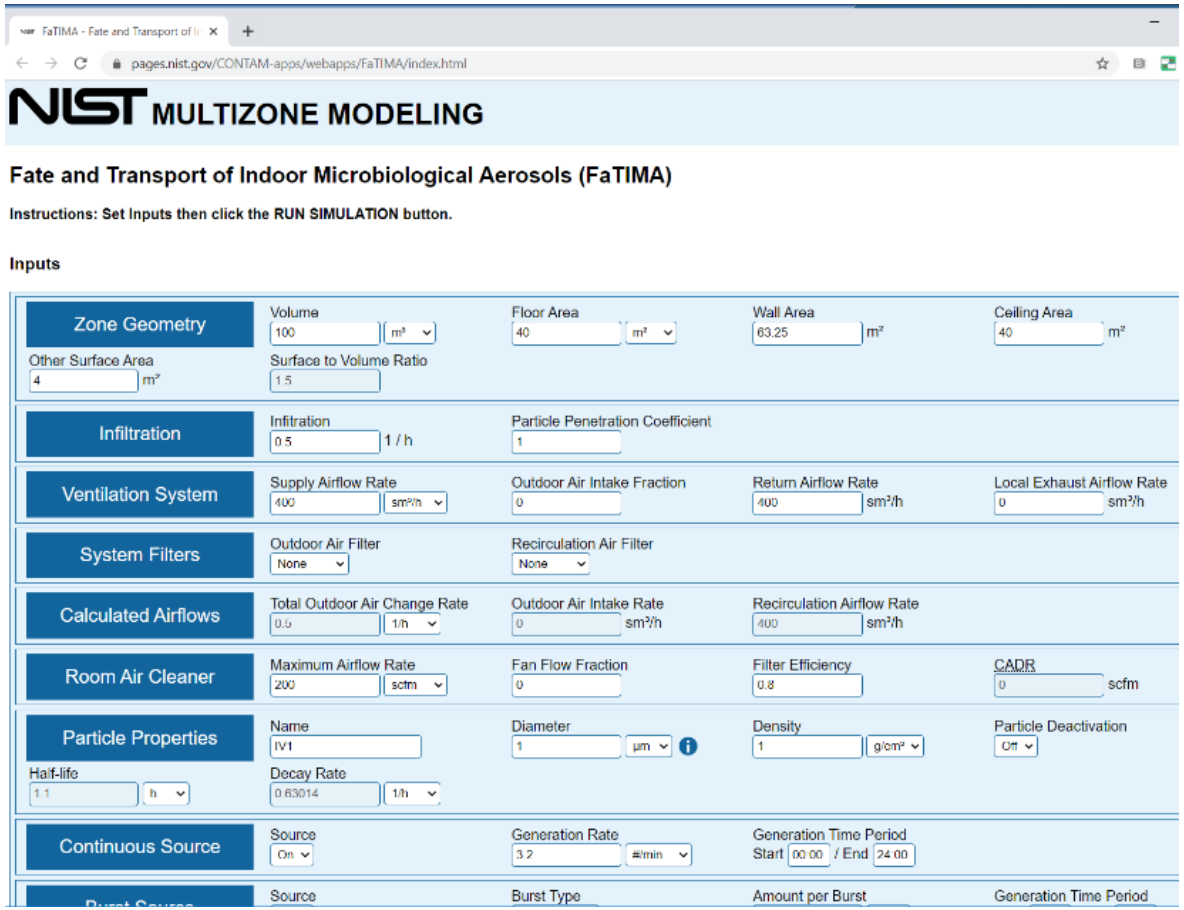



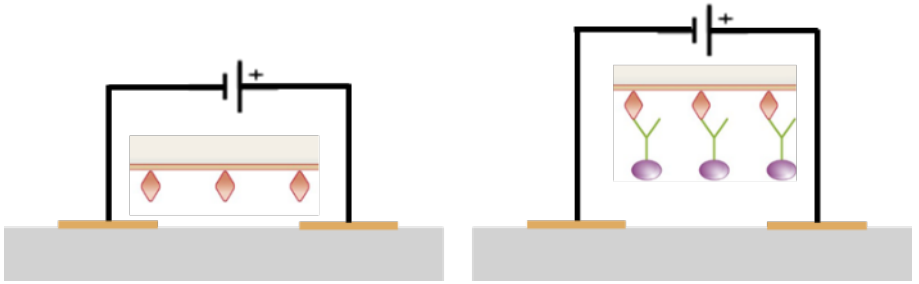
Boulder

*Public Interest Internship Experience*

Image Credits (cw): Amy Engelbrecht-Wiggins, Marcus Mendenhall, Brian Renegar

# & More…



Credit: A. Stelson

Image credit: FDA

# Select Snapshots of Activities

Dr. Peter Vallone
**COVID-19 Detection**

Dr. David LaVan
**Personal Protective Equipment**

Dr. Ellen Voorhees
**TREC-COVID**