

# FPD All-Hands

May 4, 2020



# Welcome to FPD!

**Norman Picker** is FPD ESH Officer

**Tim Bond** will head our engineering department

**Nathan Collins** is our communications partner

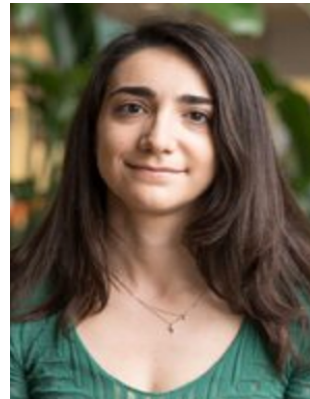


# Panofsky Fellowship Program

## Lab-wide Fellowship program honoring Pief

- 2 Fellowships awarded each year
- Rigorous competition
- 5-year award

**Kimmy Wu**  
**2021-2025**  
**CMB-S4**



**Zeeshan Ahmed**  
**2016-2020**  
**CMB-S4**

**Michael Kagan**  
**2017-2021**  
**ATLAS**

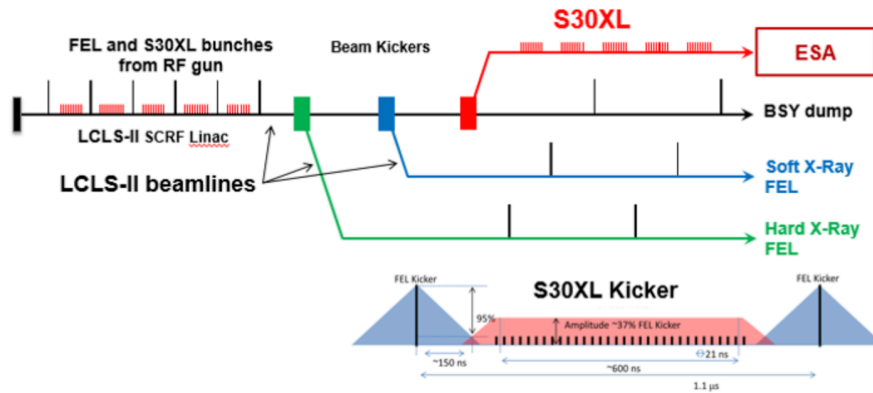
**Caterina Vernieri**  
**2019-2023**  
**ATLAS**

**Emma McBride**  
**2019-2023**  
**HEDS**

**Daniel Gruen**  
**2020-2024**  
**DES/LSST**

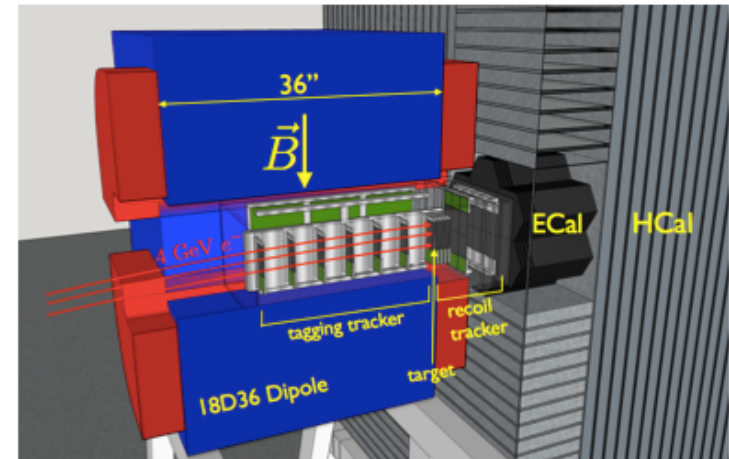
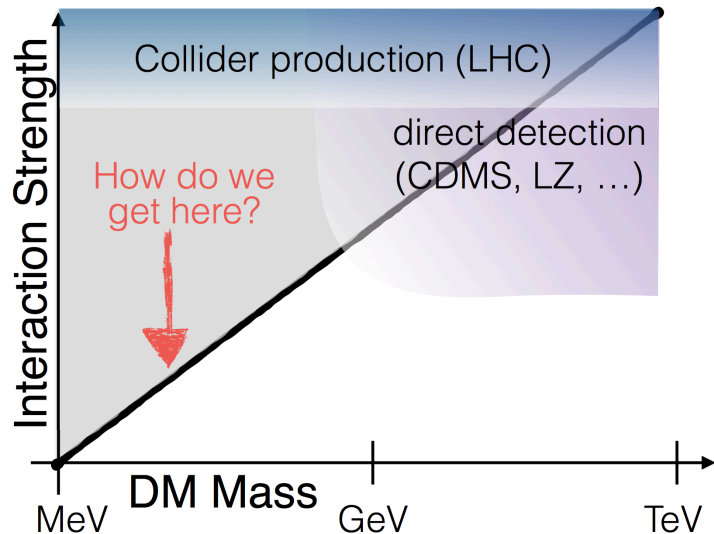
# Sector 30 Transfer Line has been funded!

We're building a new beamline for particle physics at SLAC!



Dark current electrons from LCLS-II will be transferred to End Station A

LDMX will be a fixed target detector in ESA to search for dark matter and measure neutrino cross sections





## THE ALMOST INVISIBLES:

Exploring the Weakly  
Coupled Universe

48<sup>th</sup> SLAC Summer Institute will be held as an on-line zoom video conference August 10-21, 2020

- Cosmology, CMB, Dark Energy, Dark Matter, Gravitational Waves, Neutrinos

Wide international interest from young and old alike

- Registration required, but no fee

<https://conf.slac.stanford.edu/ssi2020/>

546 Registered participants as of today!!!

## Several SLACmass groups have made significant progress

- A few groups powered through the shelter-in-place with discussions/meetings
- Some regrouping needed . . . .
- We will have convener meetings this week to plan the next step
- Most information at indico site:
  - <https://indico.slac.stanford.edu/category/28/>

## Meanwhile, Snowmass 2021 is taking shape

- Virtual kickoff at April APS meeting
- Frontiers/topical groups formed
- Next target:
  - **Letters of Interest** (April 1 – August 31, 2020)
  - **Contributed Papers** (April 1 – July 31, 2021)

A number of people in our community are leading frontiers and topical groups

- EF01: EW Physics Higgs Boson properties: C. Vernieri
- NF01: Neutrino Oscillations: H. Tanaka
- NF05: Neutrino properties: L. Kaufman
- TF01: String theory, quantum gravity, black holes: S. Kachru
- Accelerator Frontier: T. Raubenheimer
- AF1: Beam Physics and Accelerator Education: Z. Huang
- AF3: Accelerators for EW/Higgs: M. Ross
- AF6: Advanced Accelerator Concepts: M. Hogan
- AF7: Accelerator Technology R&D/RF: E. Nanni
- IF1: Quantum Sensors: K. Irwin
- CompF3: Machine Learning: K. Terao
- CommD5: Public Education & Outreach: K. Jepsen
- **Please work with them to get your input into the process!**

# APS DPP Community Planning Process

## Division of Plasma Physics Community planning

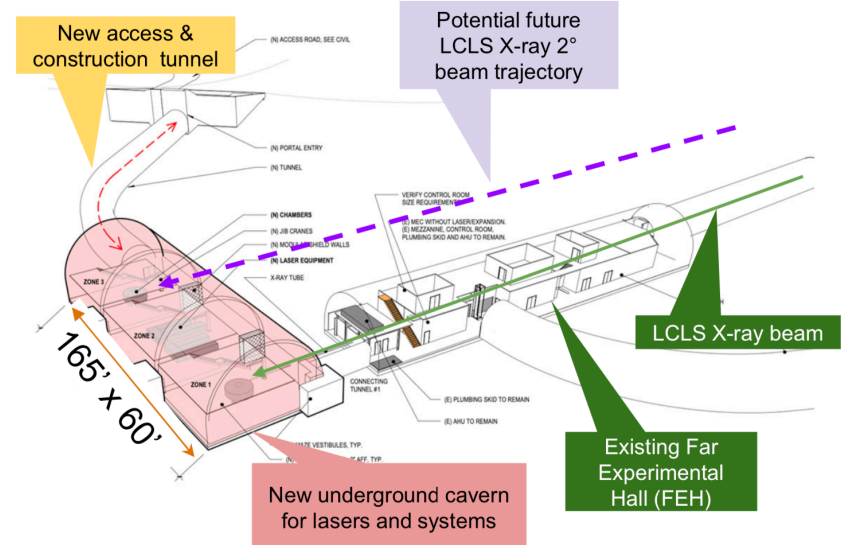
- Final report submitted to FESAC in March
- Arianna Gleason served on the High Energy Density Physics working group
- Endorsed the Matter in Extreme Conditions upgrade

### A Community Plan for Fusion Energy and Discovery Plasma Sciences

Report of the 2019–2020 American Physical Society Division of Plasma Physics Community Planning Process



## MEC Upgrade



## Activities have a broad span

- Working actively with DOE COVID-19 working group
  - National Virtual Biotechnology Laboratory
  - SLAC engaged with 7 multi-laboratory teams
  - Effort spans bio-imaging, testing, medical therapeutics, medical equipment
- SSRL running COVID research beamlines
- CRYO-EM 3D map of COVID RNA
- LCLS will image room temperature virus in real time when it starts operations

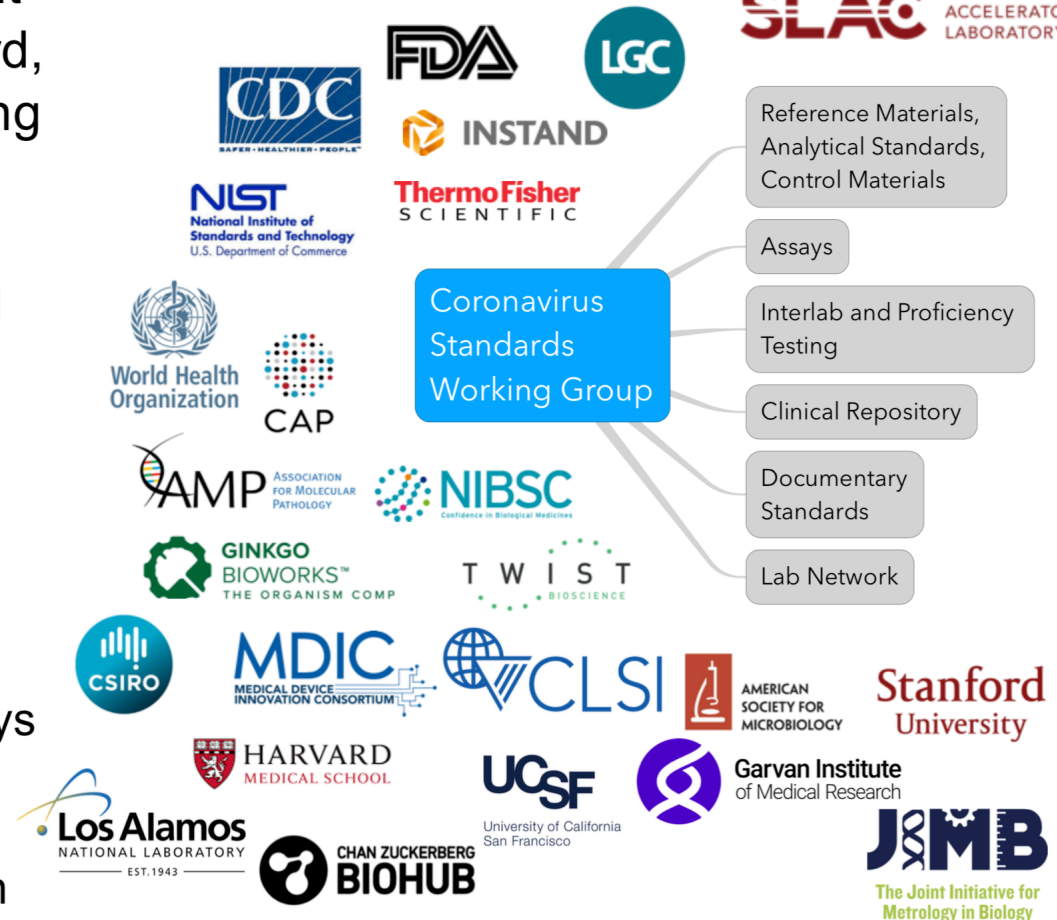
# SLAC-hosted Coronavirus testing standards working group

JIMB (Joint Institute for Metrology in Biology), a bioscience measurement partnership between SLAC, Stanford, and NIST, convened a global working group (CSWG) to coordinate and develop standards for testing

- government agencies, professional societies, commercial, academia

CSWG is...

- developing annotated inventory of standards
- developing Minimum Information Checklists for Standards and Assays
- coordinating comparison and benchmarking studies
- developing Guidance Document on standards and validation



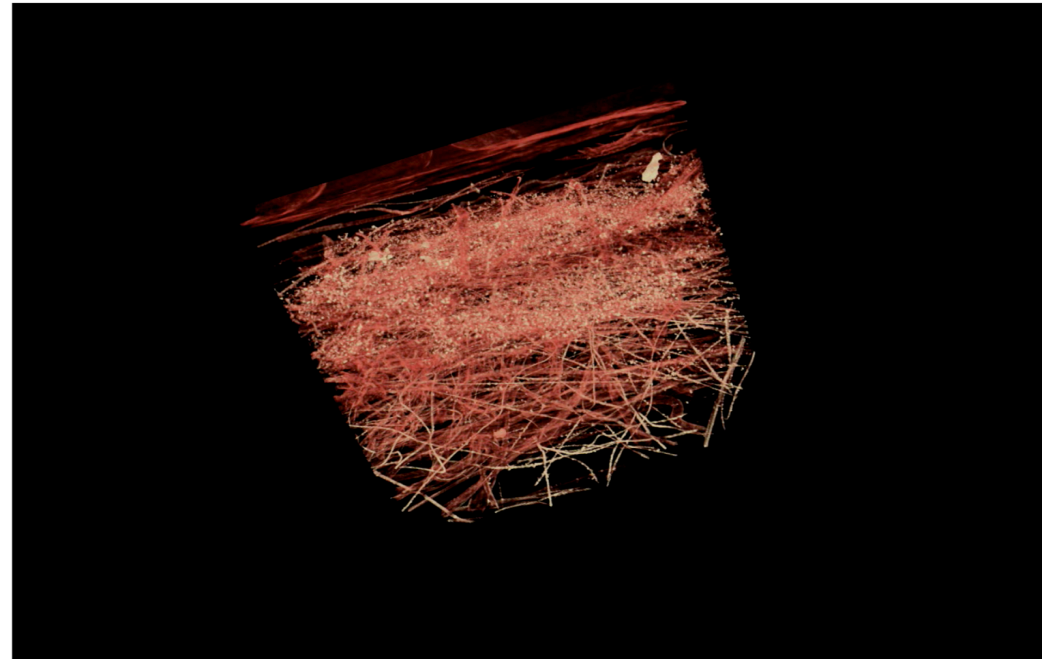
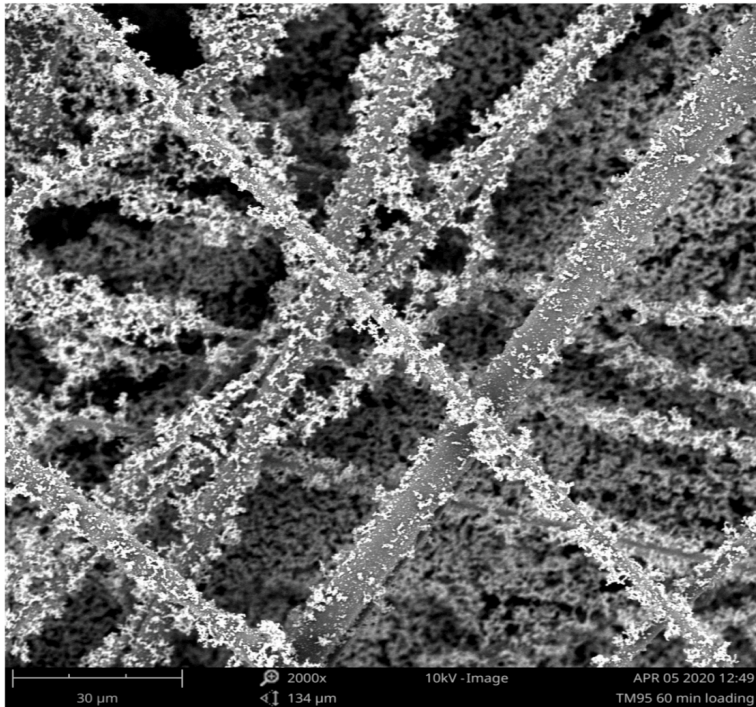
# 3D imaging of particle distribution inside n95 masks

SLAC

Yi Cui, SLAC/Stanford

Scanning electron microscopy

X-ray CT



Using heat to sterilize  
N95 masks

**Team members:**

**Stanford**

Steve Chu, Wah Chiu, Hye ROUNG Lee, Arturas Vailionis, Riley Zhang

**SLAC:**

Johanna Weker, Yijin Liu, Piero Pianetta

**4C Air Team:** Dr. Lei Liao

# ICU Ventilator Cable Extension

Utilizes SLAC's experience with design of noise immune control power cables (Haller, Herbst, TID)

- To control and monitor ICU ventilators, respiratory therapists must enter the ICU each time
  - Uses up PPE and takes time (to suit up and down in PPE)
- Cable from mechanical ventilator to control console is short so can't be remotely operated
- Longer cable allows control console to be located outside of the ICU
- Will be tested at Stanford University Hospital first week of May
- Will be tested at Valley Medical Hospital in Santa Clara this week



SLAC assembled cable

# Pneumatic AMBU bag ventilator project

Develop a crisis-use ventilator using:

- An AMBU respirator bag and ICU parts for patient circuit
- Standard laboratory parts for mechanical compressor and controls
- For crisis-use by communities with acute shortages of standard devices
- Target “audience” is low-income countries, or for second-wave in U.S. if shortage of standard solutions
  - Contacts established in Bangladesh and Ethiopia
- Collaboration of FPD, TID, and medical professionals from Valley Hospital, San Jose
- Expect to complete prototype within days, including v.1 software
- Next steps
  - 3-5 copies for stress tests and evaluation
  - Develop kits for ~100 units
  - Publish open source paper

Breidenbach, Akerib, Shutt,  
Roodman, AIR Division in TID



# COVID-19 Shelter in Place and Work @SLAC

## SF Bay Area shelter-in-place order began March 17

- Recently extended to May 30
- ~50 essential personnel on site per day for skeletal operations

## Recovery Task Force has been formed - led by Jeff Sims

- Restart activities prioritized, governed by set of guiding principles
- Work will restart slowly
  - Phase 1 – 1<sup>st</sup> wave: start accelerators, large projects (LCLSII, LSST)
  - Phase 1 - 2<sup>nd</sup> wave: Small number of small scale projects
  - Phase 2: Many small scale projects/lab-work will start
  - Phase 3: Limited on-site operations
  - Phase 4: “New Normal” operations
- Training and protection protocols for each phase
- Remote work will remain for a few months for most folks
- Fermi operations have been carried out remotely without interruption 😊



# Recovery Task Force for post-'shelter in place'– led by Jeff Sims



## Goals:

Identify decisions needed, criteria and actions required to implement a phased recovery of priority onsite operations using common guiding principles.

Utilizing a project approach develop a detailed recovery plan including activities, personnel, resources, critical supply chain issues, and associated risk analysis with mitigations.

## Participating in DOE Community of Practice for Recovery

- This is not intended to get people back fast or to rush into things.
- This is an opportunity to think through a safe restart that protects the health of our staff

# SLAC onsite recovery task force



## PROGRAM and Projects

**LCLS:** Sebastian Boutet\*

**LCLS-II:** Richard Boyce\*

**AD:** Axel Brachmann\*

**LSST:** Vincent Riot\*

**SSRL:** Tom Rabedeau\*

**ESD:** Michelle Young

**FPD:** Tim Nelson

**TID:** Craig Burkhart\*

## MISSION SUPPORT

**F&O:** Eric Haun\*

**Comms:** Melinda Lee

**BTS:** Bill Zangara, Kevin Purcell

**ESH:** Jeremy Sawyer

**Security:** Simon Ovrachim

**CACM:** Rich Poliak

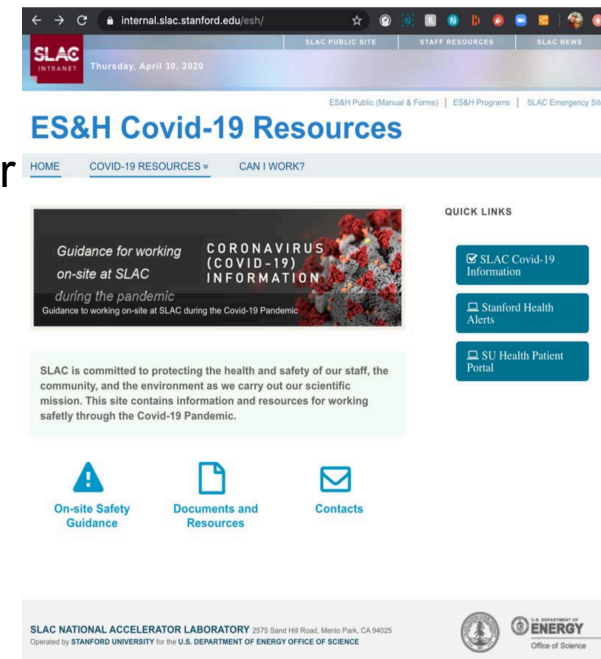
**HR:** Karen Van Der Pyl

**OPM:** Julia Chaffin

\* Priority recovery activity leaders

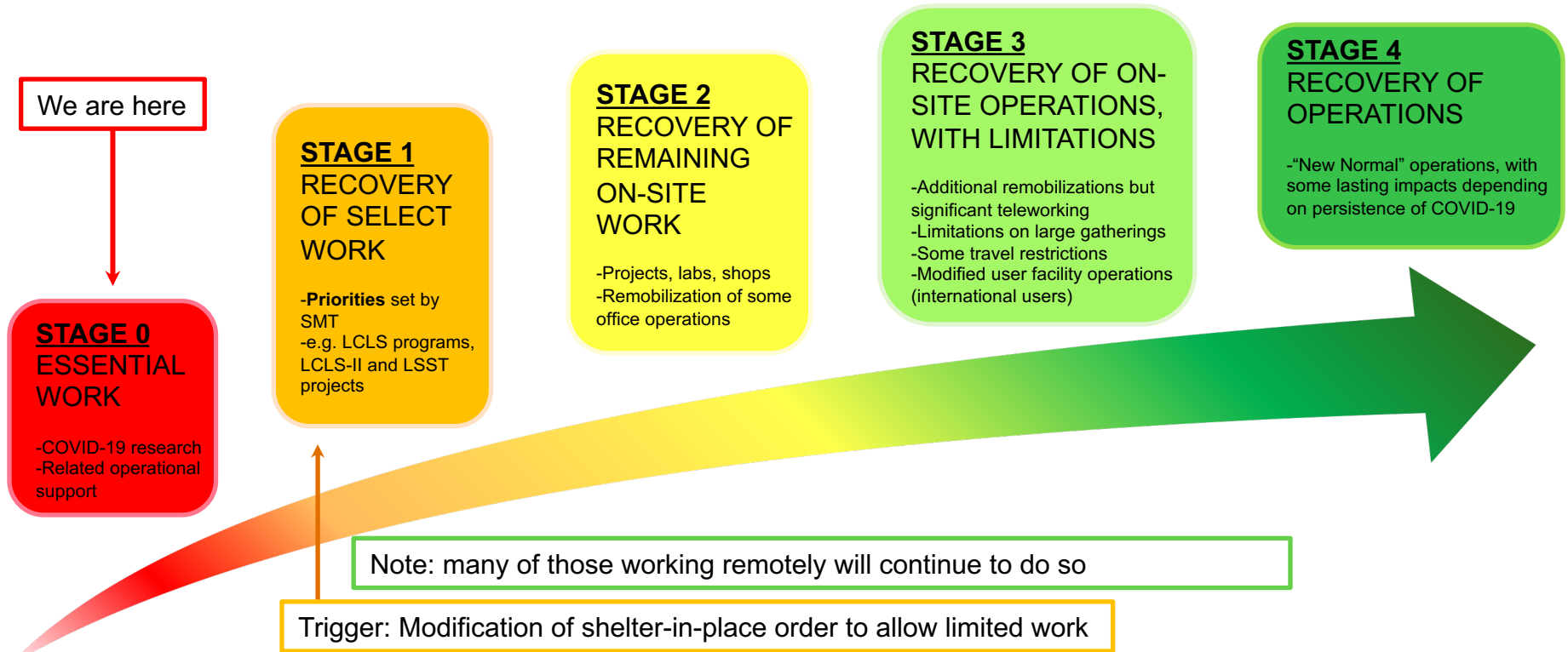
# Reminder - Guiding Principles

- I. Our people's health and safety is our overriding focus
- II. WPC adheres to Public Health/CDC requirements
- III. Work is released appropriately and with intention
- IV. Develop and implement mandatory recovery training for all
  - **Start slowly** – need to rebuild confidence and muscle memory
  - Human performance – precursors of distraction, stress, fatigue
  - Staying safe with COVID
  - Listen to understand emerging challenges
- V. Take a phased approach that is flexible and based on priority
- VI. The majority of SLAC employees will remain in a remote work environment.



- **Peoples health is the most important aspect of all that we do**
- **We are not restarting in a normal environment- social distancing and hygiene considerations will be the norm for some time with on site work**

# Recovery planning: a deliberate, flexible (and potentially long) path



A phased transition from shelter-in-place to full recovery of operations could take a while.<sup>8</sup>  
We must continue to be patient, thoughtful and understanding.

# COVID-19 protocols for work planning and control

Level of Work	General Description	Examples of Types of Activities	Cloth Face Covering/ Personal Protective Requirements	Cleaning Requirements
<b>Level 0</b>	Off-site activities	Work from home	No special equipment is required	Typical Household cleaning
<b>Level 1</b>	No in-person interactions	Single worker onsite	Cloth face-coverings are encouraged but worn voluntarily	Clean as you go: common touch surfaces
<b>Level 2</b>	Limited interactions with others	Working at > 6' from others. Passing someone in a hallway or on a stairway	Cloth Face Covering	Clean as you go: common touch surfaces
<b>Level 3</b>	Brief activities where physical distancing is not feasible	Working within 6' < than 10 minutes.	Cloth face-coverings and disposable gloves	Clean as you go: common touch surfaces Shared PPE and tools: clean prior to and after use
<b>Level 4</b>	Activities with two or more people working within 6' of each other for >10 minutes	Working within 6' for >10 minutes.	N95 respirators, disposable gloves	Clean as you go: common touch surfaces Shared PPE and tools: clean prior to and after use

# Retrieval of Equipment for Home Use



**Coming soon to a theater near you! Process will be in place later this week.**

- Items that are necessary for an employee to effectively telework
- Telecommuting agreement on file
- Pre-approved by supervisor and ESH coordinator to evaluate risks
- Appointment to be made through Security who will escort
  - IT equipment pickup arrange through IT Help before setting appointment with Security
- Social Distancing Protocols in effect when at the Lab
- Property Control requirements remain in effect
- Employee responsible for safe set-up and equipment use, and return of equipment when they return to work

Not Permitted	
Chemicals, gasses	Items that can potentially generate hazardous waste
Radioactive materials	Electrical equipment greater than 120VAC
Soldering irons/solder	Non-ionizing radiation generating equipment (lasers, Rf sources, etc.)
Any other equipment determined by ESH Coordinator to be hazardous	
Furniture	
PII: pre-approval by Eric Shupert	



# Questions?

- Please raise your “Hand” (at the bottom of your Zoom screen, click  then  ) and wait to be called on if you have a question
- You may also use the “Chat” function to type out your question and the moderator will read it out for you