

2022 Annual Program Review Agenda

Sunday, July 17 – Thursday, July 21
Crystal Gateway Marriott, Arlington, Virginia

Updated August 10, 2022

Sunday, July 17

- 5:00 – 9:00pm **Registration** — *Grand Registration Desk*
- 6:00 – 7:30pm **Fellows' Welcome Session** — *Salon K*
Fellows only: Incoming, first-, second-, third- and fourth-year students to convene before breaking into cohort-specific groups.
- 7:30 – 9:00pm **All-Attendee Making Connections Reception** — *Skyview*

Monday, July 18

- 8:00am – 5:00pm **Registration** — *Grand Registration Desk*
- 8:00 – 9:00am **2020 Fellows' Portrait Session** — *Madison*
- 9:00 – 9:15am **Welcome & Introduction of New Fellows** — *Salons ABCDE*
Jeffrey Hittinger — *Director and Division Leader, Center for Applied Scientific Computing, Lawrence Livermore National Laboratory; DOE CSGF Alumnus*
- 9:15 – 9:30 am **DOE NNSA Welcome**
Njema J. Frazier — *Assistant Deputy Administrator (Acting), Strategic Partnership Programs, Office of Defense Programs, National Nuclear Security Administration*
- 9:30 – 9:45am **DOE Office of Science Welcome**
Barbara Helland — *Associate Director, Advanced Scientific Computing Research, Office of Science, U.S. Department of Energy*
- 9:45 – 10:30am **Keynote**
David L. Brown — *Lawrence Berkeley National Laboratory, retired*
"An Applied Mathematician Tours 50 Years of Computational Science"
- 10:30 – 10:45am **Break** — *Foyer, Salons ABC*

Session I — *Salons ABCDE*

Moderator: Hal Finkel — *Office of Science, U.S. Department of Energy*

- 10:45 – 11:05am **Kaley Brauer** — *Massachusetts Institute of Technology*
"Studying the Tiniest, Oldest Galaxies"
- 11:05 – 11:25am **James Sullivan** — *University of California, Berkeley*
"Computational Challenges in Computational Cosmology - Simulators, Differentiable Models, and Surrogates"
- 11:45am – 1:00pm **Lunch** — *Salons FGHIJK*
- 1:15 – 1:25pm **Announcement of 2022 Frederick Howes Scholars** — *Salons ABCDE*
Jeffrey Hittinger — *Lawrence Livermore National Laboratory; DOE CSGF Alumnus*

- 1:25 – 1:55pm **Howes Scholar Presentation**
Noah Mandell — Postdoctoral Research Fellow, Massachusetts Institute of Technology; DOE CSGF Alumnus
"Optimizing the Performance of Fusion Reactors at Exascale"
- 1:55 – 2:25pm **Howes Scholar Presentation**
Morgan Kelley — Data Scientist, Dell Technologies; DOE CSGF Alumna
"Dynamic Modeling and Optimal Scheduling of Chemical Processes Participating in Fast-Changing Electricity Markets: A Data-Driven Approach"
- 2:25 – 2:40pm **Break** — Foyer, Salons ABC
- 2:30 – 4:00pm **DOE Laboratory Poster Session Set Up** — Salons FGHIK

Session II — Salons ABCDE
Moderator: Christine Chalk — Office of Science, U.S. Department of Energy

- 2:40 – 3:00pm **Dipti Jasarasaria** — University of California, Berkeley
"Hot Exciton Cooling at the Nanoscale: Circumventing the Phonon Bottleneck via Multiphonon Emission"
- 3:00 – 3:20pm **Margaret Lawson** — University of Illinois at Urbana-Champaign
"Accelerating Discovery From High Performance Computing Applications Using Descriptive Metadata Management"
- 4:00 – 6:00pm **DOE Laboratory Poster Session** — Salons FGHIK

Tuesday, July 19

- 8:00am – 5:00pm **Registration** — Grand Registration Desk
- 8:00 – 9:00 am **2021 Fellows' Portrait Session** — Madison
- 9:00 – 9:15am **Announcements** — Salons ABCDE
David L. Brown — Lawrence Berkeley National Laboratory (retired)
- 9:15 – 10:00am **Keynote**
Frederick H. Streitz — Senior Advisor, Centers for Disease Control and Prevention; Chief Computational Scientist, Lawrence Livermore National Laboratory
"HPC and Machine Learning for Molecular Biology"
- 10:00 – 10:20am **Break** — Foyer, Salons ABC

Session III — Salons ABCDE
Moderator: Bill Spatz — Office of Science, U.S. Department of Energy

- 10:20 – 10:40am **Olivia Hull** — Kansas State University
"QimPy: Quantum Integrated Multi-Physics - a New Density Functional Theory Package"
- 10:40 – 11:00am **Edward Hutter** — University of Illinois at Urbana-Champaign
"Scalable Methods for Modeling High-Dimensional Application Performance"
- 11:00 – 11:20am **Ryder Fox** — University of Miami
"Varying Sensitivities to Sub-Kilometer Horizontal Grid Spacing and Microphysics Parameterizations Across a Spectrum of Heavy Precipitation Events: From Hurricanes to Midlatitude Thunderstorms"
- 11:20 – 11:40am **Jesse Rodriguez** — Stanford University
"Inverse Design of Reconfigurable Plasma Metamaterials for Optical Computing"
- 11:45am – 1:00pm **Lunch** — Salons FGHIK

Session IV — Salons ABCDE

Moderator: Christine Chalk — Office of Science, U.S. Department of Energy

1:20 – 1:40pm	Christiane Adcock — Stanford University <i>"Hybrid Modeling for Wind Farm Simulation and Control"</i>
1:40 – 2:00pm	Michael Tucker — University of Hawaii <i>"The Rise of Astrophysical Transients"</i>
2:00 – 2:20pm	Lawrence Roy — Oregon State University <i>"Communication-Efficient Secure Two-Party Computation From Minimal Assumptions"</i>
2:20 – 2:40pm	Break — Foyer, Salons ABC
2:40 – 3:00pm	Steven Fromm — Michigan State University <i>"General Relativistic Neutrino Radiation Transport in Neutron Star Mergers"</i>
3:00 – 3:20pm	Caitlin Whitter — Purdue University <i>"Physics-Informed Prediction of Molecular Properties Using a Graph Convolutional Network"</i>
3:30 – 5:00pm	Fellows' Poster Session Set Up — Salons FGHIJK
3:45 – 4:15pm	Fellow/Alumni Portrait Retakes (Option 1) — Madison
3:45 – 4:15pm	Outgoing Fellows' Meeting — Salons ABCDE
4:15 – 4:45pm	Outgoing Fellows' Portrait Session — Madison
5:00 – 6:00pm	Fellows' Poster Session (2019 Class) — Salons FGHIJK

Wednesday, July 20

8:00am – 5:00pm	Registration — Grand Registration Desk
8:00 – 9:00 am	2022 Fellows' Portrait Session — Madison
9:00 – 9:05 am	Announcements — Salons ABCDE Shelly Olsan — Krell Institute
9:05 – 9:15am	CYSE Announcement — Salons ABCDE Thomas R. O'Donnell — Science Media Editor, Krell Institute
9:15 – 10:00am	Keynote Ashlee N. Ford Versypt — Associate Professor, Department of Chemical and Biological Engineering, University at Buffalo; DOE CSGF Alumna <i>"Systems Biomedicine and Pharmaceuticals: Multiscale Modeling of Tissue Remodeling and Damage"</i>
10:00 – 10:20am	Break — Foyer, Salons ABC

Session V — Salons ABCDE

Moderator: David Etim — National Nuclear Security Administration, U.S. Department of Energy

10:20 – 10:40am	K. Grace Johnson — Stanford University <i>"Quantum Chemistry at Scale: Multi-Node Multi-GPU Two-Electron Integral Code Generation"</i>
10:40 – 11:00am	Paul Zhang — Massachusetts Institute of Technology

11:00 – 11:20am	<i>"Local Decomposition of Hexahedral Singular Nodes Into Singular Curves"</i> Steven Stetzler — University of Washington <i>"Solar System Science From the Dark Energy Camera Deep Drilling Field Survey"</i>
11:20 – 11:40am	Samuel Olivier — University of California, Berkeley <i>"High-Order Moment Methods for Thermal Radiative Transfer"</i>
11:45am – 1:00pm	Lunch — Salons FGHIJK

Session VI — Salons ABCDE
Moderator: David Etim — National Nuclear Security Administration, U.S. Department of Energy

1:20 – 1:40pm	Justin Finkel — University of Chicago <i>"Revealing the Statistics of Extreme Events Hidden in Short Weather Forecast Data"</i>
1:40 – 2:00pm	Sarah Greer — Massachusetts Institute of Technology <i>"Superresolution With the Zero-Phase Imaging Condition"</i>
2:00 – 2:20pm	Kimberly Cushman — Yale University <i>"How Sticky is Galactic Glue? Investigating Composite Dark Matter Scattering"</i>
2:25 – 4:00pm	Fellows' Poster Session Set Up — Salons FGHIJK
2:45 – 3:45pm	Fellow/Alumni Portrait Retakes (Option 2) — Madison
4:00 – 5:00pm	Fellows' Poster Session (2020 Class) — Salons FGHIJK
5:00 – 6:00pm	Fellows' Poster Session (2021 Class) — Salons FGHIJK

Thursday, July 21

8:00am – 12:00pm	Registration — Grand Registration Desk
8:45 – 9:45am	Alumni Early Career Panel — Salons ABCDE <i>Recent alumni will discuss their experiences joining the workforce and field related questions from the audience.</i> <ul style="list-style-type: none"> • Jerry Wang, Moderator — Assistant Professor, Carnegie Mellon University • Ian Dunn, Panelist — Senior Mechanical Analysis Engineer, ASML • Kyle Felker, Panelist — Assistant Computational Scientist, Argonne National Laboratory • Aditi Krishnapriyan, Panelist — Assistant Professor, University of California Berkeley; Faculty Scientist, Lawrence Berkeley National Laboratory • Melissa Yeung, Panelist — Industry Researcher
10:00am – 12:00pm	Professional Development Workshop: Communicating About Yourself and Your Research — Salons ABCDE <i>University of Maryland staff will provide guidance for resume writing, informational interviewing, and communicating research to audiences that span from novice to expert. Attendees are encouraged to bring their current resume and research statement as there will be an opportunity to implement best practices (with facilitator and DOE CSGF alumni small-group feedback) during the balance of the workshop.</i> <ul style="list-style-type: none"> • Linda Macri, Ph.D., Co-Facilitator — Director, Academic and Professional Development, The Graduate School, University of Maryland • Veronica Perrigan, Co-Facilitator — Director for Student Programs, A. James Clark School of Engineering, University of Maryland
12:00 – 1:00pm	Grab-and-Go Lunch — Salons FGHIJK

