



# Parallel Applications Workshop, Alternatives to MPI+X

November 19<sup>th</sup>, 2021  
Virtual Event

Held in conjunction with SC21: The International Conference for  
High Performance Computing, Networking, Storage, and Analysis



In cooperation with:





# Organization

- Workshop Chair
  - Karla Morris
    - Sandia National Laboratories
- Organizing Committee
  - Rosa M. Badia
    - Barcelona Supercomputing Center
  - Michael Ferguson
    - Hewlett Packard Enterprise
- Program Committee Chairs
  - Bill Long
    - Hewlett Packard Enterprise
  - Sean Treichler
    - NVIDIA
- Advisory Committee
  - Bradford L. Chamberlain
    - Hewlett Packard Enterprise
  - Damian W. I. Rouson
    - Sourcery Institute
  - Katherine A. Yelick
    - Lawrence Berkeley National Laboratory

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# Program Committee

- Vicenç Bertran
- Dan Bonachea
- Peter Braam
- Harold Castro
- Bradford Chamberlain
- Valentin Churavy
- John Feo
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- Barcelona Supercomputing Center
- Cranfield University
- RIKEN Advanced Institute for Computational Science



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# Program

8:30 - Welcome and Introduction

8:33 - **Invited Speaker:**

Modesto Orozco - Institute for Research in Biomedicine  
*Towards an Efficient Use of Exa-Scale  
High-Performance Computing*

9:20 - **Session 1**

10:00 - Break (30 minutes)

10:30 - **Session 2**

11:30 - **Panel Discussion**



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# Session #1 -- 9:20 – 10:00

- Please take a moment to give us feedback!
  - LINK <https://sc21.hubb.me/fe/schedule-builder/sessions/880218>  
(goes to official SC21 HUBB Site)
- Coming Up
  - 9:20 - *Demonstrating UPC++/Kokkos Interoperability in a Heat Conduction Simulation*  
Daniel Waters, **Colin A. MacLean**, Dan Bonachea, and Paul H. Hargrove
  - 9:40 - *Scaling and Acceleration of Three-dimensional Structure Determination for Single-Particle Imaging Experiments with SpiniFEL*  
**Hsing-Yin Chang**, Elliott Slaughter, Seema Mirchandaney, Jeffrey Donatelli, and Chun Hong Yoon



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# Session #2 -- 10:30 – 11:30

- Please take a moment to give us feedback!
  - LINK <https://sc21.hubb.me/fe/schedule-builder/sessions/880218>  
(goes to official SC21 HUBB Site)
- Coming Up
  - 10:30 - *Towards High Productivity and Performance for Irregular Applications in Chapel*  
**Thomas B. Rolinger**, Joseph Craft, Christopher D. Krieger and Alan Sussman
  - 10:50 - *Evaluation of two topology-aware heuristics on level-3 BLAS library for multi-GPU platforms*  
Thierry Gautier, **João V. F. Lima**
  - 11:10 - *Optimization of Asynchronous Communication Operations through Eager Notifications*  
**Amir Kamil**, and Dan Bonachea



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# Panel Discussion -- 11:30 – 12:00

- Panel Moderator
  - Swaroop S. Pophale - Oak Ridge National Laboratory
- Panelists
  - Barbara Chapman - Hewlett Packard Enterprise and Stony Brook University
  - Alan Edelman - Massachusetts Institute of Technology
  - Eric Laurendeau - Polytechnique Montreal
  - Modesto Orozco - Institute for Research in Biomedicine Barcelona
  - Nikhil Padmanbhan - Yale University