



The University of California High-Performance AstroComputing Center presents

Computational Astrophysics 2014-2020: Approaching Exascale Lawrence Berkeley Lab - March 21-22

Friday 8:30 – 9:30 **Breakfast on site** (LBL – Building 66 Auditorium)

9:30 am **Welcome** – Joel Primack (UCSC) UC-HiPACC 5th year report, this conference

9:45 am – 1:00 pm **Latest Progress and Current Challenges** – Chair: Peter Nugent

Cosmological simulations – Anatoly Klypin (NMSU), Mike Warren (LANL)

Collisionless fluids - Tom Abel (Stanford)

Galaxy simulations – Dušan Kereš (UCSD), Phil Hopkins (Caltech)

Star formation simulations - Mark Krumholz (UCSC)

Planet formation simulations – Greg Laughlin (UCSC)

Simulations of supernovae and neutron star mergers – Dan Kasen (UCB/LBNL)

Computational neutrino flavor astrophysics – George Fuller (UCSD)

Time domain computing – Julian Borrill (LBNL), Tom Vestrand (LANL)

Berkeley Institute for Data Science (BIDS) - Saul Perlmutter (UCB/LBNL)

Data-driven astronomical inference with machine learning – Joshua Bloom (UCB)

1:00 – 2:00 **Lunch provided on site for all registered participants**

2:00 – 3:30 pm **Visualization**

Public outreach – Ryan Wyatt (California Academy of Sciences)

Recent Progress in GPU-based Visualization of N-body and AMR Simulations

– Ralf Kaehler (Stanford/KIPAC)

Volumetric data analysis and visualization with yt

– Matt Turk (Columbia) with Alex Bogert (UCSC)

3:30 – 4:00 **Coffee Break**

4:00-6:00 pm **How Can We Improve UC-HiPACC?** – Chair: Mike Norman

Support campus programs – James Bullock** (UCI)

Develop intercampus/lab programs – Peter Nugent (LBNL)

Expand topical areas covered by UC-HiPACC - Mike Norman (UCSD)

Pursue creation of a scientific computing institute – Joel Primack (UCSC)

Roundtable discussion by UC-HiPACC campus and lab representatives of what has

worked, what needs improvement – including Maruša Bradač* (UCD),

Dušan Kereš (UCSD), Gillian Wilson (UCR), Tom Vestrand (LANL)

6:30-8:30 pm **Dinner at Great China Restaurant, 2190 Bancroft Way, Berkeley**

Saturday 8:30 am – 9:30 am **Breakfast on site**

9:30 am – 12:30 pm **Greatest Challenges for This Decade** – Chair: Joel Primack

Progress porting applications to manycore architectures, NERSC-8 procurement

– Katie Antypas (NERSC Services Director and NERSC-8 Procurement lead)

Capabilities of and simulation software for new high performance computers

– Mike Norman (UCSD), Piyush Mahrotra (NAS)

Time domain computing – Peter Nugent (LBNL)

Big Data: storing, moving, mining, visualizing – Mike Norman (UCSD)

Cooperating – e.g., AGORA high-resolution galaxy simulation comparison project

– Joel Primack (UCSC)

12:30 pm **Lunch provided on site for all registered participants**

*=to be confirmed, **=by Skype