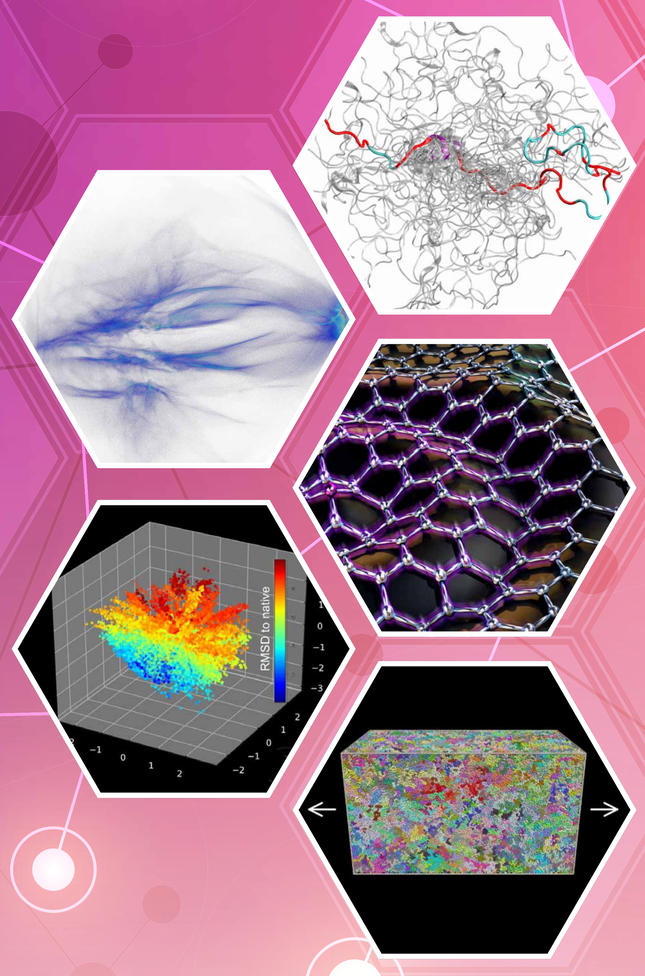

2020-2021 ALCC

5,870,000 total Summit node hours

Biology

Global Climatype Clustering: Precision Agriculture for Bioenergy
Daniel Jacobson, Oak Ridge National Laboratory
400,000 node hours

Integrating HPC Molecular Simulation with Neutron Scattering to Study Complex Biological Systems
Loukas Petridis, Oak Ridge National Laboratory
300,000 node hours

Artificial Intelligence Directed Adaptive Multi-scale Simulations to Model RAS-RAF Cancer Initiation Pathway
Harsh Bhatia, Lawrence Livermore National Laboratory
600,000 node hours

Computer Science

Enabling Resilient and Portable Workflows from DOE's Experimental Facilities
Katerina Antypas, Lawrence Berkeley National Laboratory
20,000 node hours

Electronic Structure and Excited States Dynamics of Quantum Materials
Jacek Jakowski, Oak Ridge National Laboratory
180,000 node hours

Evolutionary Multi-Scenario Simulation Environment for Autonomous Vehicle Testing
Robert Patton, Oak Ridge National Laboratory
150,000 node hours

Engineering

Flow Physics and Machine Learning Based Modeling of SBLI and WBLI in Transonic Compressors
Stephen Priebe, GE Research
230,000 node hours

Characterizing Coastal Low-Level Jets and Their Impact on Offshore Wind Farms
Jing Li, GE Research
190,000 node hours

Toward Full-Core Multiphysics High-Fidelity Calculations
Elia Merzari, Pennsylvania State University
150,000 node hours

Atomistic Bridges to Carbon Defects at Exascale
Ashley Shields, Oak Ridge National Laboratory
100,000 node hours

Design of Next-Generation Energy Conversion Systems Using Extreme-Scale Computing
Venkat Raman, University of Michigan
200,000 node hours

Fusion Energy Science

Multiscale Edge Turbulence in Fusion Plasmas
Jeff Candy, General Atomics
56,0000 node hours

Energetics of Collisionless Plasmas in the Laboratory and Space
Will Fox, Princeton Plasma Physics Laboratory
62,000 node hours

Gyrokinetic Simulations of Multi-Scale Plasma Turbulence in Tokamaks
David Hatch, University of Texas at Austin
69,000 node hours

Plasma Surface Interaction Modeling
Brian D. Wirth, University of Tennessee
155,000 node hours

Toward the Future: High-Fidelity Simulation for NextGeneration Nuclear Reactors
Yiqi Yu, Argonne National Laboratory
300,000 node hours

Materials Science

Nonlinear Rheology of Entangled Polymers
Jan Michael Carrillo, Oak Ridge National Laboratory
183,000 node hours

Quantum Turbulence in Fermi Superfluids
Michael Forbes, Washington State University
300,000 node hours

Metastability in Driven Dynamical Systems for Next-Gen Microelectronics Applications
Panchapakesan Ganesh, Oak Ridge National Laboratory
500,000 node hours

Large- Scale Numerical Simulations of Polymer Nanocomposites
Gary Grest, Sandia National Laboratories
325,000 node hours

Electromagnetic Corrections to Strong Dynamics
Amy Nicholson, University of North Carolina at Chapel Hill
100,000 node hours

Physics

Elucidating Acceleration Mechanisms in Laser-Plasma Ion Accelerators
Axel Huebl, Lawrence Berkeley National Laboratory
108,000 node hours

Proton Quasi-PDFs and Quasi-GPDs from Lattice QCD
Martha Constantinou, Temple University
100,0000 node hours

Precision Lattice QCD for Flavor Physics
Carleton DeTar, University of Utah
100,000 node hours

Confronting the New Challenges in Hadron Spectroscopy
Robert Edwards, Thomas Jefferson National Accelerator Facility
100,000 node hours

Nucleon Matrix Elements: Probes of New Physics
Rajan Gupta, Los Alamos National Laboratory
100,000 node hours

Portable Performance on Exascale Hybrid Architectures
Bronson Messer, Oak Ridge National Laboratory
130,000 node hours

Probing QCD Crossover with Hyper-Skewness and Hyper-Kurtosis
Swagato Mukherjee, Brookhaven National Laboratory
100,000 node hours

Hadron Structure from Lattice QCD
Kostas Orginos, William & Mary
100,000 node hours

The Gluonic Structure of the Proton
Phiala Shanahan, Massachusetts Institute of Technology
100,000 node hours

QMC-HAMM: From the Nanoscale to the Mesoscale
Lucas Wagner, University of Illinois Urbana-Champaign
362,000 node hours

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