



Contribution ID: 82

Type: **Workshop/BoF proposal**

## Introduction to HPC

*Sunday, 3 December 2017 09:00 (8 hours)*

This tutorial will provide an entry-level presentation of the basic concepts, knowledge, and skills associated with a strong foundation in modern supercomputing. This introductory treatment is based on a first-year graduate course taught jointly at several universities and currently at Indiana University. Variations of this tutorial have been given at SC11, SC12, ISC13, ISC14, ISC15, ISC16, CHPC16, and ISC17. The tutorial will describe supercomputer architecture including multi-core organization and GPUs, parallel programming models like OpenMP and MPI, simple parallel algorithms, system software and tools for scheduling, debugging, performance monitoring and tuning, and underlying technology trends and future directions of this rapidly changing field. Emphasis will be given to practical information including current generation systems, sources of available software, and links for further reading. This tutorial provides the broadest outreach to people new to the field, students, managers, policy makers, and those needing a refresh in this rapidly advancing domain. Live demonstrations will be presented throughout the tutorial on the Big Red II+ Petaflops computer at Indiana University. This full-day tutorial will include hands-on use for those attendees wishing to engage the learning experience at this depth. Questions will be welcomed throughout the presentation.

### HPC content

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**Session Classification:** Sunday Workshop: Introduction to HPC

**Track Classification:** Workshops