**1st Workshop on Parallel Programming in the Exascale Era (PPEE 2021)**

**Website: https://ppee-workshop.github.io/**

**17th - 18th December 2021, Bangalore, India**

**OVERVIEW**

The upcoming exascale systems will impose new requirements on application developers and programming systems to target platforms with hundreds of homogeneous and heterogeneous cores. The four critical challenges for exascale systems are extreme parallelism, power demand, data movement, and reliability. These systems are aimed to solve problems that were previously out of reach and improve the parallel performance of applications by a factor of 50x. The power budget for achieving a billion billion (quintillion) floating-point operations per second (exaflops) should be within 20-30 MW. Moving the data on these systems relative to the computation will be challenging due to complex memory hierarchies. It would be essential to keep the CPUs/accelerators busy once they have the data to avoid memory bottlenecks. Failures on these systems are anticipated to occur many times a day, such that the existing approach for resiliency, such as checkpointing and restart, will not work.

**TOPICS**

The goal of this workshop is to attract leading researchers to exchange ideas and share their work-in-progress and latest results to address the exascale software challenges. Topics of interest include, but are not limited to:

* High-level programming models for many-cores / accelerators
* Compilation techniques for hybrid CPU/accelerator parallelism
* Intra- / Inter-node load balancing and scheduling
* Runtime systems for high performance and high productivity
* Comparisons of runtime systems and parallel programming models
* OS/runtime and system software for manycore systems, accelerators, and non-uniform memory hierarchy
* Optimizing data locality and data movement
* Energy efficiency and optimizations
* Resilience and fault-tolerance
* Scalable algorithms
* Scalable synchronization mechanisms
* Concurrent data structures
* Applying machine learning techniques in HPC

**IMPORTANT DATES**

Abstract Submission Deadline: October 24, 2021 (encouraged)

Paper Submission Deadline: October 31, 2021 (hard deadline)

Paper Notification: November 15, 2021

Presentation Slides Upload Deadline: November 22, 2021

All deadlines are at 11:59 PM AOE (UTC-12).

**SUBMISSION GUIDELINES**

Papers are to be submitted online in PDF format through Easychair at: <https://easychair.org/conferences/?conf=ppee2021>

Submitted manuscripts should be structured as technical papers and must not exceed five (5) single-spaced double-column pages using 10-point size font on 8.5×11 inch pages (IEEE conference style), including figures, tables, and references. The submitted paper should list the authors and their affiliations. The IEEE conference style templates for MS Word and LaTeX provided by IEEE eXpress Conference Publishing are available for download. See the latest versions [here](https://www.ieee.org/conferences/publishing/templates.html). Electronic submissions must be in the form of a readable PDF file.

The accepted papers will be invited for presentation at the workshop. However, these papers will **NOT** be published in the conference proceedings. This will allow the authors to publish an extended version of their paper at other venues after benefiting from reviewer feedback from the workshop. Papers will be judged on technical merit, quality, and relevance to the workshop. Plagiarism, in any form, especially verbatim reproduction from other published works, is prohibited. Papers that are plagiarized will be rejected, and the corresponding department and institution will be notified.

**ORGANIZATION COMMITTEE**

Vivek Kumar, IIIT-Delhi, India

Swarnendu Viswas, IIT Kanpur, India

Vishwesh Jatala, IIT Bhilai, India

**Notice about COVID-19**

We are closely monitoring the COVID-19 situation globally and in India in particular. The decision of whether to hold the workshop on-site or virtually will be made before November 2021. Should the conference be held on-site, we understand that travel to India and within India may still be difficult or even impossible for some. Because travel from outside India will require an entry visa and that there may be travel restrictions still in place, we will arrange some form of remote presentation for those authors. Every accepted paper will have at least one author who will register and present the paper at the workshop (virtually/physically).