

3rd International Workshop on Theoretical Approaches to Performance Evaluation, Modeling and Simulation



<http://tapems.unex.es>

The reality faced by today's practice on scientific programming is complex. Modern High Performance Computing platforms present fast networks linking deep memory hierarchies culminated by multi- and many-core GPPs and accelerators, with the goal of reaching the highest possible performance. Today's HPC is mostly done in clusters. The HPC industry relies on software tools the intriguing task of determining the performance gain or loss of using a given component, either hardware or software, but formal prediction techniques is the way to make such analysis easier and probably scalable. Performance prediction remains a significant unmet challenge in the area of HPC.

The objective of the **TAPEMS International Workshop** is to bring together researchers and practitioners from academia and industry to discuss current advances and trends in theoretical approaches to the performance evaluation, modeling and analysis of parallel applications and algorithms on multicore clusters and heterogeneous platforms, including grids and clouds environments. Big data techniques, and energy consumption modeling, analysis and prediction are also covered. The workshop will be organized by the **University of Extremadura, University College Dublin and University Carlos III**, and will be held by the IEEE CCGRID 2019 conference, organized by University of Cyprus.

Three main areas are considered:

1. Performance modeling and evaluation. We pursue contributions on methodologies, metrics, formalisms and tools for the performance prediction and analysis of any subsystem of current machines, such as processor, communications, memory and I/O.
2. Modeling energy efficiency of communication runtimes. Power is considered the major impediment in designing the next-generation Exascale systems, particularly affected by the cost of the communications. Current communication performance models predict communication completion times. We look for links between communication performance modeling in terms of both time and consumed energy.

3. Heterogeneous computing systems. Submissions in this area are encouraged to model workload and communication in order to optimize energy and performance in heterogeneous computing.

List of **topics of interest** for the workshop includes (but is not limited to):

- Performance modeling, prediction and optimization of parallel algorithms and applications on HPC platforms.
- Performance modeling and optimization of communications on heterogeneous systems.
- Performance-aware and energy-aware implementation and deployment of parallel applications.
- Model-based load balancing and data partitioning algorithms of data-parallel applications on heterogeneous platforms.
- Tools, Libraries and Domain Specific Languages to develop scientific applications on HPC platforms.
- Modeling, prediction and measurement of energy consumption on parallel platforms, including its relation to performance.
- Application of the models to applications in different scientific fields.

Important dates:

Paper Submission Deadline: **March 6th, 2019.**

Author Notification: **March 18th, 2019.**

Camera-Ready Paper Due: **March 28th, 2019.**

Conference Dates: **May 14th-17th, 2019.**

Publication:

All papers should be submitted electronically through EasyChair workshop website (<https://easychair.org/conferences/?conf=tapems2019>) with PDF format.

Submitted papers must not substantially overlap with papers that have been published or that are simultaneously submitted to a journal or a conference with proceedings. Papers must be clearly presented in English, and may not exceed 10 letter-size (8.5 x 11) pages including all figures, tables and references using the **IEEE format for conference proceedings**.

Accepted papers and presented at the TAPEMS 2019 will be published in the IEEE CCGrid 2019 conference proceedings (core A ranking).

Venue:

TAPEMS is part of the CCGrid 2019 conference workshops. The conference will be held in Larnaca, Cyprus, at **Golden Bay Beach Hotel** situated in the South Eastern region of Cyprus at the Bay of Larnaca.

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Organization:

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