



PPAM 2026

16th INTERNATIONAL CONFERENCE ON PARALLEL PROCESSING AND APPLIED MATHEMATICS

Website: ppam.edu.pl

Poznań, Poland

August 30 - September 2, 2026

2nd WORKSHOP ON ADVANCEMENTS OF GLOBAL CHALLENGES APPLICATIONS

CALL FOR PAPERS

Global Challenges (GC) address problems that require interdisciplinary expertise, and demands for solutions at scale due to their inherent complexity. Thus, GC aims to explore synergies between modelling, data acquisition, simulation, data analysis and visualisation along with achieving better scalability on current and future High Performance Computing (HPC), High Performance Data Analytics (HPDA) and Artificial Intelligence (AI) infrastructures to deliver highly-scalable solutions that can effectively utilise pre-exascale systems.

The Workshop on **Advancements of Global Challenges Applications (AGCA)** is intended to be a **forum for discussion ideas** for the development of high-scale simulation applications for tackling GC demands, with particular emphasis on their scalability, efficiency, AI and co-design. We are looking for original papers that report measured results and reproducible evaluation of high-scale GC applications and supporting methods, including performance engineering, data/AI workflows and application-hardware co-design.

WE WELCOME TOPICS INCLUDING (BUT NOT LIMITED TO):

A) Global Challenges applications and case studies

- Large-scale GC case studies, including CFD and Agent-Based Modelling
- Digital twins of multi-scale, coupled GC workflows
- Validation, benchmarking and reproducible evaluation of GC workloads

B) Algorithms and methods at scale

- Surrogate/reduced-order modeling and scalable solvers for GC simulations
- Load balancing and runtime scheduling for parallel/distributed GC applications
- Performance-portable programming models and algorithmic adaptivity

C) Performance engineering, co-design and sustainability

- Application-hardware co-design for HPC/AI systems
- Performance analysis methodologies, profiling and optimization
- Energy efficiency, power-aware optimization and cost/performance trade-offs

D) AI, HPDA and data management

- Data analytics and AI methods supporting GC simulations and pipelines
- In-situ / in-transit analytics and scalable data processing (methods and pipelines)
- Efficient data management: storage, I/O, transfer and metadata at scale

E) Platforms, architectures and visualization

- Emerging architectures and accelerators for GC applications
- Workflow systems and pipeline orchestration for multi-stage GC scenarios (tooling and middleware)
- Visualization and interactive/immersive analysis of large simulation datasets

PAPER SUBMISSION AND PUBLICATION

The rules of PPAM conference apply. Papers will be refereed and accepted on the basis of their scientific merit, relevance to the workshop topics, originality, correctness and quality of presentation. Papers cannot be previously published or submitted for publication elsewhere. **Full papers** should not exceed 15 pages, we also consider **extended abstracts** of 4 pages. Only full papers will be published in proceedings.

Please **submit papers** via the PPAM Conference submission system (**EasyChair**, look for **AGCA track**), formatted according to the PPAM specification (LNCS style). Submissions should be prepared for double-blind review, i.e., without author names or other identifying material. Authors should refer to themselves in the third person when citing their own work. We encourage authors to provide performance data, scripts or containers in the form of links to external repositories (not mandatory).

All full papers will be subject to the "**Best Paper for Workshops**" competition.

JOURNAL SPECIAL ISSUE

The authors of the best articles selected by the program committee and the guest editors will be invited to submit extended versions of their work to high-quality journal special issues such as Future Generation Computer Systems, Int. Journal of High Performance Computing Applications, Journal of Parallel and Distributed Computing, International Journal of Parallel Programming. Invitation does not guarantee acceptance, standard peer review applies.

DATES

Submission of Papers: ~~May 5, 2026~~ **May 19, 2026**
Notification of Acceptance: ~~June 17, 2026~~ **July 1, 2026**
Conference: **August 30 - September 2, 2026**
Camera-Ready Papers: **November 3, 2026**

WORKSHOP CHAIRS

Marcin Lawenda,
Poznan Supercomputing and Networking Center, Poland
Łukasz Szustak,
Czestochowa University of Technology, Poland

AGCA CONTACT

Marcin Lawenda
Poznan Supercomputing and Networking Center
Jana Pawła II 10, 61-139 Poznań, POLAND
email:lawenda@man.poznan.pl

WORKSHOP PROGRAM COMMITTEE

Mario Acosta, Barcelona Supercomputing Center, Spain
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