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# High Performance Computing


34th International Conference, ISC High Performance 2019  
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Proceedings

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# Preface

ISC High Performance, formerly known as the International Supercomputing Conference, was founded in 1986 as the Mannheim Supercomputer Seminar. Originally organized by Hans Meuer, Professor of Computer Science at the University of Mannheim and former director of its computer center, the seminar brought together a group of 81 scientists and industrial partners who shared a common interest in high-performance computing. Since then, the annual conference has become a major international event in the high-performance computing community and, accompanying its growth in size over the years, the conference has moved from Mannheim via Heidelberg, Dresden, Hamburg, and Leipzig to Frankfurt. With a record-breaking 3,505 attendees in 2018, we were looking forward to further growth in the number of attendees. Their expertise made ISC High Performance 2019, again, a powerful and memorable event.

Twelve years ago, in 2007, the scientific part of the conference was strengthened by having selected talks on research results arising within or relevant to the HPC community. These research paper sessions were then held on a separate day preceding the conference, and slides and accompanying papers were made available via the conference website. The research paper sessions have since evolved into an integral part of the conference, and the scientific presentations now take place over a period of three days and culminate in these archival proceedings.

For ISC High Performance 2019, the call for participation was issued in autumn 2018, inviting researchers and developers to submit the latest results of their work to the Program Committee. In all, 75 papers were submitted from authors all over the world. The Research Papers Program Committee consisted of 93 members selected from 20 countries throughout the world. Furthermore, 20 external expert reviewers from the community were invited to help with specific papers. After initial reviews were in place, a rebuttal process gave authors an opportunity to respond to reviewers' questions and help clarify any issues the reviewers might have. To come to a final consensus on the papers for the program and these proceedings, a face-to-face meeting was held in Frankfurt in February 2019, where each paper was discussed. Finally, the committee selected 17 papers for publication and for presentation in the research paper sessions, out of which four papers had to undergo a shepherding process.

Emerging Technologies was introduced as a track in 2019 and attracted papers this year touching on the intersection of quantum computing and HPC.

For the past several years, the ISC High Performance conference has presented an ISC-sponsored award to encourage outstanding research in high-performance computing and to honor the overall best research paper submitted to the conference. Two years ago, this annual award was renamed the Hans Meuer Award in memory of the late Dr. Hans Meuer, general chair of the ISC conference from 1986 through 2014, and a co-founder of the TOP500 benchmark project. From all research papers submitted, the Research Papers Program Committee nominated two papers as finalists

for the award, and, based on the final presentations during the conference, elected the best paper.

We would like to express our gratitude to all our colleagues for submitting papers to the ISC scientific sessions, as well as to the members of the Program Committee and the external reviewers for organizing this year's attractive program.

June 2019

Carsten Trinitis  
Ponnuswamy Sadayappan  
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