

# Welcome to the 3rd bwHPC-Symposium

Vincent Heuveline<sup>1,2,3</sup>

<sup>1</sup>Computing Centre, Heidelberg University

<sup>2</sup>Interdisciplinary Center for Scientific Computing, Heidelberg University

<sup>3</sup>Heidelberg Institute for Theoretical Studies

The bwHPC initiative manages and harmonizes the usage, administration, and (future) setup of supercomputers at higher education institutions and research facilities in the state of Baden-Württemberg. Based on this initiative, researchers are not just limited to using the HPC resources at their home institutions, but are guaranteed fair and easy access to supercomputers all across the state. As maintained by the bwHPC guidelines, many of these supercomputers cater to the individual requirements and special needs of specific disciplines or fields of research. To offer additional support and guidance for all users, the bwHPC-C5 project has been established as an integral part of the bwHPC network.

The bwHPC-Symposium is an annual gathering of administrators and users of this bwHPC network. It fosters a lively exchange between the users and administrators of supercomputers, serving as a platform to discuss experiences, problems, and innovations in a very hands-on manner. As a provider and administrator of one of those supercomputers, we at the Heidelberg University Computing Centre were more than happy to be able to host this event, and we are delighted to share its proceedings with a wider audience through this publication.

High performance computing has become a key asset in modern research. This volume shows just how ubiquitous, how diverse and how interdisciplinary the application of supercomputers has become. The articles in this volume encompass topics from the sciences and the humanities, ranging from physics to earth sciences to economics and engineering.



Figure 1: Welcome to the 3rd bwHPC-Symposium at the Marsilius-Kolleg in Heidelberg.

As we walk further into the digital age of research, we see many changes and challenges looming on the horizon: more digitization in all disciplines (even in the most conservative fields), larger and larger amounts of raw data to store, process, and archive, and research questions that, by their very nature, go far beyond the processing power of the human brain.

Supercomputers are the crucial tool for this digital age. They help us to examine processes of tremendous complexity, from the population patterns of water fleas to the formation of stars in far-off galaxies. To be able to harness their full potential, we need initiatives like bwHPC that help us to use and enhance these powerful research tools in a sensible and proficient way, and these wonderful proceedings of the 3rd bwHPC-Symposium show that we are definitely on the right track.

## **Acknowledgements**

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Figure 2: Participants of the 3rd bwHPC-Symposium 2016 in Heidelberg.