

## Preface

The International Conference on Nuclear Theory in the Supercomputing Era — 2018 (NTSE-2018) brought together experts in nuclear theory and high-performance computing in the city of Daejeon, Republic of Korea, from October 29th through November 2nd, 2018. This conference series was started in 2012 by the NTSE-2012 and HITES-2012 conferences which were proceeded later under the common title NTSE. The NTSE conferences focus on forefront challenges in physics, namely the fundamentals of nuclear structure and reactions, the origin of the strong inter-nucleon interactions from QCD, and computational nuclear physics with leadership class supercomputer facilities to provide forefront simulations leading to new discoveries.

The conference welcomed many young scientists, including graduate students in nuclear physics, computational science and applied mathematics. All participants together made the conference a great success.

The conference topics,

- (1) *Ab initio* nuclear structure;
- (2) Microscopic approaches to nuclear reactions;
- (3) Origin and properties of the strong interactions; and
- (4) Computational science and applied mathematics,

reflect current world-wide research interests and encompass a broad area of fundamental physics and high-performance computing.

We would like to express our appreciation to all participants of the NTSE-2018 conference, to all contributors to these proceedings, to all members of the Scientific Advisory Committee and to the NTSE-2018 sponsors.

The organizing committee:

Youngman Kim (Chair), Institute for Basic Science, Republic of Korea  
Kihyeon Cho, Korea Institute of Science and Technology Information, Republic of Korea  
Kyujin Kwak, Ulsan National Institute of Science and Technology, Republic of Korea  
Alexander Mazur, Pacific National University, Russia  
Ik Jae Shin (Scientific secretary), Institute for Basic Science, Republic of Korea  
Andrey Shirokov (Vice Chair), Moscow State University, Russia  
James Vary (Vice Chair), Iowa State University, USA