About RIKEN AICS

RIKEN is Japan's largest comprehensive research institution, and is renowned for its high-quality research in diverse range of scientific disciplines. The RIKEN Advanced Institute for Computational Science (AICS), one of RIKEN's centers, was founded in 2010 with the objective of pioneering the new science of computer simulation-based forecasting. To this end, AICS does the following;

- Management of the operations of the K computer and maintenance of a user-friendly environment.
- Promotion of collaborative projects with a focus on the disciplines of computational science and computer science.

2010 RIKEN AICS established

2011 K computer topped the TOP500 rankings

2012 Full operation of K computer commenced

2014 Exascale Computing Project launched

2020 Operation of post K supercomputer will start

AICS Research Division

The AICS Research Division consists of 16 research teams and 3 research units. Its main tasks are;

- Promotion of K computer-based simulations in science and technology by developing more effective simulation methods.
- Development of methods for achieving more efficient operation of the K computer.

The Research Division brings together researchers specializing in computational and computer science to integrate and further develop the two fields into what may eventually become a whole new field of interdisciplinary computational science, and to contribute to the development of even more powerful supercomputers in the future.

System Software Research Team

Developing System Software That Enables Efficient Utilization of Computation Resources

Team Leader: Yutaka ISHIKAWA

Computational Materials Science Research Team

Simulating the Motion of Electrons to Elucidate Quantum State Properties of Matter

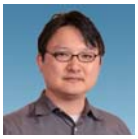
Team Leader: Seiji YUNOKI

Programming Environment Research Team

Development of a New Programming Language and Performance Analysis Tool for the K computer

Team Leader: Mitsuhisa SATO

Computational Biophysics Research Team



Depicting the Motion of a Biomolecule to Detail Its Function

Team Leader: Yuji SUGITA

Processor Research Team

Enhancing Processor Hardware Design to Increase Its Performance

Team Leader: Makoto TAIJI

Particle Simulator Research Team

Particle-based Simulation Software for Wide-ranging Space-time Applications

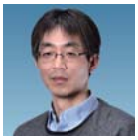
Team Leader: Junichiro MAKINO

Large-scale Parallel Numerical Computing Technology Research Team

Developing a Numerical Library for Fast, High-precision Simulation

Team Leader: Toshiyuki IMAMURA

Computational Climate Science Research Team



Developing More Fundamental Climate Models for Improved Climate Simulation

Team Leader: Hirofumi TOMITA

HPC Usability Research Team

Development of a Computing Portal Site

Team Leader: Toshiyuki MAEDA

Complex Phenomena Unified Simulation Research Team

Programs to Enable the Unified Simulation of Complex Phenomena

Team Leader: Makoto TSUBOKURA

Field Theory Research Team

Developing Calculation Methods to Elucidate the Behavior of Elementary Particles

Team Leader: Yoshinobu KURAMASHI

HPC Programming Framework Research Team

Supporting Development of High Performance Applications for the K computer

Team Leader: Naoya MARUYAMA

Discrete Event Simulation Research Team

Developing Technology for the K computer to Simulate Social Phenomena

Team Leader: Nobuyasu ITO

Advanced Visualization Research Team

Developing Visualization Technologies to Advance Manufacturing and Science

Team Leader: Kenji ONO

Computational Molecular Science Research Team

Developing a Molecular Theory and Software for Predicting Reactions and Properties of Molecules

Team Leader: Takahito NAKAJIMA

Data Assimilation Research Team

Data Assimilation as a Bridge between Simulations and the Real World

Team Leader: Takemasa MIYOSHI

K computer

Human Resources Development & International Collaborations

Human Resources Development

AICS offers educational programs to develop human resources and educate young researchers in the field of computer science.

International HPC Summer School on HPC challenges in Computational Sciences

Since 2013, AICS has been participating as a host institute, sending lecturers and young researchers from Japan.




The 6th International HPC Summer School in Toronto in June 2015

HPC Summer/Spring School and Youth Workshop in Kobe, Japan



http://www.aics.riken.jp/library/event/riken-aics-hpc-summer-school-2015.html

E-learning Archive

http://www.aics.riken.jp/jp/course

Internship Program

http://www.aics.riken.jp/en/events/160428.html

International Collaborations

AICS actively conducts International collaborative work, including the conclusion of MOUs with research institutes in various countries.

Joint Laboratory on Extreme-Scale Computing(Mar. 2015 -)

Centre National de la Recherche Scientifique Maison de la Simulation(Apr. 2014 -)

Argonne Leadership Computing Facility(Nov. 2013-)

Jülich Supercomputing Center(Oct. 2013-)

University of Maryland(Oct. 2013-)

National Computational Infrastructure (Nov. 2011-)

The Scuola Internazionale Superiore Di Studi Avanzati(May 2011-)

K computer