

From K computer to the post-K computer

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I'll describe the overview of the post-K computer project and how the scientific research using it will be organized, in particular in the field of planetary science.

K computer was completed in 2011 and its public use was started in 2012. It has the peak speed exceeding 10PF, being still the fastest supercomputer in Japan and the fourth fastest in the world. For the scientific research using K computer, five "strategic fields" were selected, and each field got the budget of around 500M JYE/year to develop application software for K computer and to do scientific research using K computer. For planetary and heliosphere sciences, in Field 5 "The origin of the matter and the universe", large scale simulations of the convective zone of Sun and planetary formation have been performed. For these simulations, application programs which could achieve high efficiency on up to a few tens of thousands of computing nodes have been developed, and helped to obtain important results.

In 2014, the project to develop the successor of K computer ("post-K computer") was started. Its goal is to achieve the application performance 100 times that on K computer. It will be completed in 2019-2020 timeframe. The design and production will be done by Fujitsu, which developed K computer as well. The post-K will have the general-purpose many-core architecture and torus network, similar to those of K computer. For the post-K computer, nine "priority issues" and four embryonic issues have been selected. Planetary science is included to one of the four embryonic issues. For the priority issues, the organizations to perform the research and development have already been selected, but for embryonic issues they are yet to be selected (as of January 2016). At the time of the meeting, hopefully, the organization will be fixed, and I'll describe the status of the "embryonic issue" for planetary science.

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