

# 国台学术报告 NAOC COLLOQUIUM

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**TIME: Wednesday, 2:30 PM, Apr. 17, 2013**    **LOCATION: A601 NAOC**

## How can we improve the laohu supercomputer with cell phone processors?

(Report and Future Plans for the laohu supercomputer)

**Prof. Rainer Spurzem (NAOC)**



Rainer Spurzem is a Senior International Scientist at NAOC. He has completed his Ph.D. at the University of Göttingen (Germany) in 1988 with a thesis on stellar systems around supermassive black holes. During the 90s he worked as a researcher and teaching assistant at the University of Kiel (Germany), bringing GRAPE special purpose computers for astrophysical N-body simulations to Europe. After postdocs and visiting fellowships in the UK, Japan and the U.S. he moved to the University of Heidelberg in 1996, where he obtained an honorary professorship in 2003. He was awarded with the GRACE project grant funded by Volkswagen foundation in Germany, which designed the GRACE supercomputer. Since 2009 he is leading the Silk Road Project as a visiting professor of CAS in Beijing, at the NAOC.

### Abstract

In 2009 NAOC has installed a GPU accelerated supercomputer named "laohu", and has supported its operation and support since. It is a collaboration between NAOC's Center of Information and Computing (CIC) and the Silk Road Project. This colloquium talk will give a summary of previous and current operation of the cluster, and present selected astrophysical research results, as examples, some brief with references, some more extended. They range from evolution of planets and star clusters to galaxies and galactic nuclei, black holes. Also some technical and administrative issues will be presented.

Usually after four years a supercomputer needs to be replaced, because it is not up to date anymore. Here I will explain how a relative small investment will upgrade laohu again to some of the most powerful supercomputers in the world operated by a single astronomical institute, and present different options (GPU upgrade, memory upgrade, Intel Mic, visualization, etc).

Also I will discuss how our computational and astrophysical research is embedded in national and international grids and collaborations, current and future.

After the seminar I offer a free format discussion round for interested colleagues with deeper interest, questions, participation in laohu upgrade plans.

*All are welcome! Tea, coffee, biscuits will be served at 2:15 P.M.*



You are welcome to nominate speakers to Weimin Yuan ([wmy@nao.cas.cn](mailto:wmy@nao.cas.cn)), Mei Zhang ([zhangmei@bao.ac.cn](mailto:zhangmei@bao.ac.cn)), Licai Deng ([licai@bao.ac.cn](mailto:licai@bao.ac.cn)), Xuelei Chen ([xuelei@cosmology.bao.ac.cn](mailto:xuelei@cosmology.bao.ac.cn)), Shude Mao ([smao@nao.cas.cn](mailto:smao@nao.cas.cn))