Fundamental Interaction SpaceTime (FIST)

A High Energy Physics Research Network in Asia

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https://fist-asiaresearch.net/

ABOUT

The FIST, Fundamental Interaction SpaceTime, is a High Physics research network formed by Research Institutions in Asia in order to encourage the building up and the strengthening of transnational research partnership and cooperation among researchers across Asia. It is essentially the first physics research collaboration network of this kind in Asia.

FIST was officially launched and announced on the web in Oct 2016, after much discussion between fellow colleagues in variousinstitutions, most notably, Satoshi Iso (KEK), Ryuichiro Kitano (KEK), Mihoko Nojiri (KEK), Eung Jin Chun (KIAS), Pyungwon Ko (KIAS), Kimyeong Lee (KIAS), Piljin Yi (KIAS), Bum-Hoon Lee (APCTP), Kiwoon Choi (CTPU), Kingman Cheung (NCTS), Chong-Sun Chu (NCTS), Xiao-Gang He (NCTS) and Henry Tye (IAS/HKUST). At present it has the following member institutions: Asia Pacific Center for Theoretical Physics, Pohang, Korea (APCTP), Institute of Advanced Studies, Hong Kong University of Science and Technology, Hong Kong (IAS/HKUST), IBS Center for theoretical physics of the universe, Daejeon, Korea (CTPU), High energy accelerator research organization, Tsukuba, Japan (KEK), Korea Institute for Advance Study, Seoul, Korea (KIAS), Kyoto University, Japan (Kyoto), National Center for Theoretical Science, Hsinchu, Taiwan (NCTS). The network covers research primarily in particle phenomenology as well as string and quantum field theory and cosmology.

GOAL

Scientific development in Asia has progressed rapidly in recent decades, witnessing more and more important breakthroughs on the scientific forefront by scientists in the Asia-Pacific region. A number of large scale international experiments in high-energy physics, such as the International Linear Collider (ILC) in Japan and the Circular Electron Positron Collider (CEPC) project in China, are also being considered seriously for the region. It is clear that Asia is playing an increasingly important role in science, and high energy physics in particular, internationally.

The principal research techniques in theoretical physics are discussion and calculation. Even with the advent of the internet, there is still no better efficient and effective way to stimulate scientific advances than to bring scientists together and to allow them to interact directly. One of the goals of the network is to act as a platform to stimulate and to enhance the interaction and collaboration among researchers. The network also aims to widen the exposure of talented students and postdoctoral researchers in the region and offer them more opportunities in their career path.

Apart from promoting the conduct of research and the nurturing of young scientists, another aim of the network is to present a coherent and welcoming research environment to scientists from outside Asia. The operation of the network would also make the region very active and help to attract and retain talented students, postdocs and

faculty. In time, the network may also consider the introduction of prizes and awards to help further promote the research conducted here and help early stage researchers in their career pursuit.

Similar European research networks have proved to be very successful.

ACTIVITIES

The network is modeled after such research networks in Europe, which have operated over the last two decades or so. Planned network activities include:

(i) *exchanges of researchers*, both early stage and experienced, among the partner institutions, with the goal to network researchers from different places and allow them to engage in collaborative research projects. Postdocs and faculty researchers will be supported and encouraged to conduct extended visits at the other institutes. A liaison officer has been identified within each institution to administer and coordinate research visits to the institute.

(ii) *organization of network meetings* including joint workshops and conferences, schools and workshops. The workshops will be devoted to new research topics, with an aim to propagate rapidly and efficiently the latest results and powerful methods and techniques to all the participants. This should enable the participants to strengthen their expertise both in scope and depth, and help to stimulate further research and collaboration.

Currently, the network operates an annual East Asian workshop in string theory (jointly organized by KEK, KIAS, NCTS and USTC, China). The first workshop of this series took place in Hefei in May 2016, and a second workshop will take place in KEK in November this year. Also there is an annual Workshop on Particle Physics Phenomenology (jointly organized by KEK, KIAS and NCTS). The first workshop took place in NCTS in May 2016. More joint activities are being planned along the way.

It is envisaged that, with the flow of researchers across the regions, the network would facilitate an effective transfer of knowledge and stimulate new ideas and practices. It would also strengthen and induce new collaboration between researchers. The organization of schools and workshops would provide high quality training to early stage researchers, and also enhance the exposure of junior researchers and facilitate the formation of professional relationships with each other as well as with the more experienced scientists.

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Ryuichiro Kitano is a professor at the theory center, KEK and Department of Particle and Nuclear Physics, SOKENDAI. He received his PhD in physics from SOKENDAI in 2002. After working at the Institute for Advanced Study and the Stanford Linear Accelerator Center as a postdoc, he joined the theoretical division of the Los Alamos National Laboratory as a staff member in 2007. He moved to Tohoku University in 2009, and joined KEK in 2013. His research area is in theoretical particle physics.