Ph.D. Student Position in Computational Astroparticle Physics

Karlsruhe Institute of Technology

A position is available for a highly motivated student with M.S. in Computer Sciences, Mathematics or Physics to join the Simulation Laboratory for Elementary Particle and Astroparticle Physics in the Steinbuch Centre for Computing and astroparticle physics group in Institute of Nuclear Phsics of KIT starting 2015.

The candidate will be offered a KSETA Doctoral Fellowship and will work in joint projects with leading researcher groups in astro- and elementary particle physics from KIT and worldwide. In particular to develop, adapt and perform simulations using code CORSIKA on massively parallel or distributed computing systems. The aim is to enable air shower simulations at ultra-high energies to be used for interpretation of results of the Pierre Auger Observatory. Here a new method for book keeping of ten thousands of parallel running jobs and produced data is under development and the algorithms of sharing the running processes and collecting the simulated data on multi-core systems will be improved. The goal is to reach maximal scalability of CORSIKA code for optimal usage of supercomputing systems with more than 100 000 computing cores. For that you will be provided access to the fastest supercomputer facilities like the ones in Europe through the Gauss Center for Supercomputing and worldwide computing infrastructures like Cloud and Grid computing initiatives.

You will be involved in the PhD programme of The „Karlsruhe School of Elementary Particle and Astroparticle Physics: Science and Technology (KSETA)“, the Graduate School of the KIT-Center for Elementary Particle and Astroparticle Physics (KCETA), that leads to a doctoral degree in physics, informatics or an engineering discipline.

Knowledge of one or two modern programming languages is necessary (C, Fortran, Perl, Python, Shell-scripting etc.). Experience in parallel and distributed computing is of advantage.

Further information about the application procedure and available research topics can be found on www.kseta.kit.edu or contact Gevorg.Poghosyan@kit.edu

Cosmic Ray induced Air Shower

Auger Observatory

Supercomputer Juqueen

Supercomputer Hermit

Roboheads help solving problems