

Visiting Report on KAGRA practical

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11.10.2015

By invitation of Professor Yutaka Shikano I was given the opportunity to visit the KAGRA gravitational wave detector for a practical of one week. During this time I worked as part of the analog-to-digital-conversion group.

About my person: I am a physics student at the Friedrich-Alexander University in Erlangen, Germany. Currently I am starting my master courses and I learned about the KAGRA project when Prof. Shikano was a guest speaker at the chair of laser physics at my university, where I was writing my bachelor thesis at this time.

Upon my arrival in Toyama city on Sunday, Prof. Shikano welcomed me in Japan and showed me around town for sites and cuisine. During the first day at the KAGRA research site he also accompanied me and introduced me to the KAGRA team members. Everyone on the team was very friendly and welcomed me to the project. I was given a tour around the experimental site in the mine by Prof. Saito and Prof. Shikano, where I could have a detailed look on the experimental setup and the current state of the project. The experimental details were explained to me and I was even able to lend a hand and help move some of the beam pipe segments for the construction process.

The rest of the week I worked in the group for analog-to-digital-conversion which deals with signal processing for the control of the suspension system. Analog information about a mismatch in the positions of the laser guiding mirrors is acquired by photo detectors and converted to a digital form. It is then processed in a feedback loop to obtain a steering signal that is send to the suspension system to correct the mirror positions.

My supervisor in this group, Dr. Kokeyama, was very friendly and spoke excellent English. She was able to find an easily accessible task for me, helping in the design of the graphic user interface of the control program. This gave me the opportunity to contribute usefully to the project, even though the time to become acquainted with the system was very limited due to the short stay.

Overall I very much enjoyed my time at KAGRA, where I was able to gain a lot of practical experience about working as part of a large research project. This also gave me the opportunity to deepen my knowledge about gravitational wave

detection and broaden my horizon concerning the work in an international field of research.

Personally I want to express my special thanks to Prof. Shikano for arranging this practical and making it all possible. Furthermore I want to thank every member of the KAGRA team for the helpful and positive attitude they showed towards me all of the time. It was a pleasure working with you!