

From Super-Kamiokande to Hyper-Kamiokande (SK2HK)

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The study of the neutrino properties and interactions has been key in the development of the Standard Model of fundamental interactions and it is providing first clues on the understanding of its deeper foundations.

The role of the Super-Kamiokande detector (ICRR, U. Tokyo, Japan) for many years has been crucial in the development of particle physics. Based on data registered by SK, oscillations of atmospheric neutrinos were disclosing the massive character of the neutrino. Because of this discovery, Takaaki Kajita, the “person in charge of this proposal” from our main TC partner ICRR, was awarded with the Nobel Prize in Physics 2015. When that happened, Prof. Kajita was already the leader and person in charge of our TC partner in our RISE-2014 project SKPLUS.

With SK2HK we aim to continue the very successful SKPLUS. I.e. the participation of European institutes in the state-of-the-art. experimental program related to the Super-Kamiokande and SuperK-Gd experiments as well as the Hyper-Kamiokande and accompanying E61 projects. We want to gain insight and even discover the hypothesized charge-parity violation in the leptonic sector with SK and the future HK. We want to discover the "Diffuse Neutrino Supernova Background" with SuperK-Gd. We want to explore at depth Grand Unification with SK and the future HK. Those measurements are key to the complete understanding of the most fundamental concepts of Physics.

The proposed secondment program offers us a unique opportunity for continue working with those world leader Institutes and Physicists.