

## **The LAGUNA Feasibility Study for the LSC to Host a Next-Generation Mega-ton type Neutrino and Nucleon Decay Experiment**

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A very detailed feasibility study for the “Canfranc Underground Laboratory” (LSC) to host a Next-Generation Mega-ton type Neutrino and Nucleon Decay Experiment was carried out within the EU funded LAGUNA program (E.U. Grant Agreement No. 212343 FP7-INFRA-2007-1). All fundamental aspects were covered: geological, geotechnic, environmental, socio-economical etc. A pre-design of the the main caverns, auxiliary caverns, access tunnels for the construction and running phases, all type of services, emergency routes and equipment, etc. was made. For each of the main caverns a rather realistic elasto-plastic model calculation was performed to validate the pre-design of the excavation and reinforcement of the main cavern. Also the full cost was estimated rather accurately. Here we emphasize the geological, geotechnic and pre-design aspects of the study that might be of some help in the design of the Hyper-Kamiokande project.

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