

Internship in experimental nuclear physics

Study of the production of superheavy nuclei for S^3 on SPIRAL2

[GANIL-SPIRAL2](#) (Grand Accélérateur National d'Ions Lourds) facility in Caen, France, is one of the 5 largest and leading laboratories in the world engaged in research with ion beams with the main focus being fundamental nuclear physics. The intensity and variety of beams delivered by the cyclotrons and the superconducting linear accelerator and the associated state-of-the-art scientific instruments make GANIL-SPIRAL2 an unique and outstanding multi-disciplinary facility. Several hundreds of researchers, from all over the world, come to GANIL annually for experiments, seminars, or longer stays.

The S^3 team leads a research program on the study of nuclear structure and nuclear reactions with Superheavy nuclei and $N = Z$ nuclei in collaboration with several institutions in Europe and worldwide.

The aim of the internship is to improve the comprehension of the fusion-evaporation mechanism and draw from there a tool to prepare experiments for S^3 . In order to do this, the student will perform calculations using the Kewpie2 Code and compare the results with existing measurements. The parameters obtained from the simulations will allow to prepare the experiments planned with S^3 . The student will also participate in experiments scheduled at GANIL and to the tests of the SIRIUS detector in view of its installation on S^3 .

Expected skills

Knowledge in scientific programming (C++, ROOT, etc.)

This work can be pursued by a PhD-thesis

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