

## Master work in applied nuclear physics

### **“Development of a detector system for commissioning of the NFS neutron facility and studies of neutron-induced fission”**

*Engineering Programme / Master in Physics - Degree Project (Ex-jobb)  
Applied Nuclear Physics 30 credits (20 weeks)*

The Division of Applied Nuclear Physics is involved in a VR project aimed at commissioning of the NFS neutron facility and studies of neutron-induced fission.

NFS (Neutrons For Science), which is currently being constructed at GANIL, France, will be a unique facility for high-precision experiments in neutron nuclear data for science and technology. The data to be measured (cross sections and angular distributions for fission and light-ion production) are of importance for neutron standards, energy applications, nuclear reaction theory, radiation effects in electronics, spallation neutron sources, crew dosimetry for aviation and spaceflight, and more.

Our group will contribute to the NFS facility with a large nuclear reaction chamber (Medley) equipped with detectors of three different types: parallel plate avalanche counters (PPAC), surface-barrier silicon detectors, and scintillators. The setup and/or its elements may also be employed at other neutron facilities in the future, both in Sweden and abroad.

There are currently a few sub-tasks that can be transformed into master diploma works, in particular:

- Participation in development of new PPACs
- Optimisation of PPAC performance with regard to working gas parameters, electronics, and data acquisition system
- Characterisation of the PPAC and surface-barrier silicon detectors in terms of time and energy resolution as well as of effective area

The study has a potential for publication in a peer-reviewed scientific journal.

We are constantly looking for students who are interested to learn and work “hands-on” in a small group of research scientists and engineers at laboratory environment. Our concepts are “learning by doing” and supervision in the group. It is advantageous for interested students having attended courses in nuclear physics and especially nuclear laboratory courses. The group is international and both English and Swedish languages are spoken.

Interested? Book an interview with us and/or attend one of our exercises at the laboratory.

### **Start date**

Upon agreement

### **Contacts**

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