



Internship project: Impact of inter- and intra-cycle specific changes on the activation characterization of NPP components

Your tasks

Nagra is offering an internship position to investigate the impact of intra- and inter cycle-specific changes in core properties (e.g., low-leakage core configuration) on the neutron flux and activation levels of surrounding structures. Activation results support NPPs in their decommissioning planning and cost studies by optimizing packaging and ensuring compliance with transport safety regulations. Furthermore, they are used to support Nagra's planning and safety calculations of the deep geological repository. Calculations will be performed using MCNP, ADVANTG and MSX whereas Python will be used for automation of processes and results post-processing.

Your task would be to model and analyse different core modelling approaches. The main steps of the project are:

- To review existing information (literature review, core data of Swiss NPPs)
- To understand how neutron flux at key locations varies between different cycles and modelling approaches
- To determine how the activation and hence packaging concept of different structural components is affected by these changes
- To evaluate the level of uncertainty introduced

Your profile

- Ability to solve problems independently using a structured approach and critical thinking skills
- Motivation and willingness to learn
- Good scientific writing skills (in English, German is considered a plus)
- Programming skills (e.g. Python, Matlab, etc.) and experience with neutron transport and activation codes are considered a plus

We offer

Our ongoing projects at the interface between industry and fundamental research offer the unique opportunity to explore the most fascinating aspects of these two worlds. You will be working along experts on key scientific, technical and implementation topics related to the deep geological disposal of radioactive waste, under realistic conditions. You will also have the opportunity to train and/or gain additional experience with nuclear codes (MCNP, ADVANTG, MSX) and programming.

Contingent upon availability and the outcome of the internship project, an MSc. thesis topic could be proposed after completion of the internship.

Your application should include:

- Your CV
- A record of all available exam grades from the BSc. and/or MSc. programme (e.g. first semester grades)
- A cover letter not exceeding 300 words

Applications will be reviewed and processed on the following dates:
17 – 21 February '25



14 – 18 April '25

10 – 17 June '25

11 – 15 August '25

13 – 17 October '25

15 – 19 December '25

If you would like to work with us on the disposal of radioactive waste, please send your complete application documents by e-mail to bewerbungen@nagra.ch