



Internship Projects at Tractebel

SERVICE DE METROLOGIE NUCLEAIRE

NUCLEAR ENGINEERING

MASTER THESES

Academic year **2020-2021**

The nuclear department of Tractebel Engie has proposed several master theses and internships, the latter being possibly transformed into master thesis topics, a.o. because of the uncertainty on the organization of internships during the Covid crisis. Interested students can contact Mrs. Florence Dandoy florence.dandoy@tractebel.engie.com or Mr. Christophe Schneidesch christophe.schneidesch@tractebel.engie.com for further information.

Tractebel is looking for an intern for our business line Nuclear in the department of Nuclear Processes, and more precisely in the Nuclear Core & Fuel Studies subgroup.

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Site: Brussels

The ENGIE Tractebel offices in Brussels are located next to the North station, making it easily accessible by public transportation.

Who is Tractebel?

Tractebel, part of Engie group, has more than 150 years of experience and is one of the world's largest engineering consultancy companies. Tractebel offers his clients multidisciplinary solutions in the fields of energy, nuclear, water and urban. Our teams are present in all the possible phases of a project, from the feasibility studies to the implementation.

You will work as intern for the business line Nuclear in the Nuclear Core & Fuel Studies group which is responsible for the fuel management of the Belgian Nuclear Fleet. The group perform calculations that span the entire spectrum of nuclear fuel applications, i.e. from the core reload design and the in-core thermal-hydraulics to studies for the spent fuel pools and spent fuel containers. Or as a figure says more than a 1000 words:

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The studies in these domains require a large set of codes and tools, together with a validation database. To remain competitive, Tractebel continuously follows the evolutions of different other codes used in the domain, whilst upgrading the existing validation database.

How will your day look like?

We are looking for a motivated intern to benchmark the CEA Cristal code used in the criticality safety assessment. Such a safety assessment is required for the spent fuel pools and the spent fuel containers to guarantee that a chain reaction, together with excessive power or radiation levels, will never manifest under these storage conditions.

This involves that:

- You will develop a knowledge of the criticality safety assessment.
- You will develop competences in the use of a multigroup Monte Carlo code which has been developed by CEA
- You will summarize the lessons-learned from using the Cristal code
- You will perform benchmarking calculations and compare to possible experimental measurements.

Who are we looking for?

- You are a studying physics or engineering with a sound basis of nuclear physics and nuclear reactor theory and you wish to get hand-on experience with an internship in an engineering company for at least 6 weeks. **NB: This subject can also be transformed in a Master Thesis.**
- Knowledge of Linux, Bash, Python, ... are considered a plus.
- You are fluent in English and know either Dutch or French
- You are curious and have an initiative mindset
- You appreciate teamwork
- You are well organized and possess a strong team spirit

What do we offer?

- An interesting and varied internship in an international environment with a good work-life balance, within a relatively young and dynamic team.
- Being able to work in an environment that allows you to strengthen your professional and technical skills



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- The opportunity to work in a team of experienced and motivated professionals and to receive sufficient professional guidance

How to apply?

Do you think that Tractebel is the perfect fit for your internship?

Send us an e-mail to recruitment-engineering@tractebel.engie.com with your CV, motivation and indicate for which project you want to apply for.

We hope to see you soon !