



Training possibilities in the European Nuclear Education Network

The European Nuclear Education Network (ENEN) is an international non-profit organization, the mission of which is the preservation and further development of expertise in the nuclear fields by higher education and training. The ENEN Association was established afterwards on the basis of the European higher education area by the partners of the “European Nuclear Engineering Network” project. The ENEN was given a more permanent character and a legal status by the foundation of the ENEN Association on 22nd September 2003.

ENEN activities are conducted through the co-operation between academia (universities) and different organizations, i.e. End Users, involved in the application of nuclear science and ionising radiation (research organizations, nuclear industries, regulatory bodies and their technical support organisations, etc.). The ENEN Association includes 77 members. Regarding universities, the ENEN Association aims for development of a more harmonized approach for education in the nuclear sciences and nuclear engineering in Europe and for achievement of a better co-operation and sharing of academic resources and capabilities at the national and international level. The general objectives of the ENEN Association with respect to End Users are defined as follows:

- to create a secure basis of skills and knowledge of value to the EU;
- to maintain an adequate supply of qualified human resources for design, construction, opera-

tion and maintenance of nuclear infrastructures, industries and power plants;

- to maintain the necessary competence and expertise for the continued safe use of nuclear energy and applications of radiation and nuclear techniques in agriculture, industry and medicine.

The ENEN+ project, co-funded by the EURATOM Research and Training Programme H2020, has established a mobility fund of more than 1 M€ to facilitate transnational mobility actions of students, Post-docs and professionals in the following fields of nuclear sector: nuclear engineering and safety, waste management and geological disposal, radiation protection, medical applications. The aim of the ENEN+ project is to attract and develop the interest of young generations in the nuclear careers and retain and sustain nuclear professionals beyond academic curricula, with the involvement of nuclear stakeholders. The applicants of the mobility actions may be citizens of any EU member state and citizens of countries which are not members of EU, pursuing studies in an EU member country and having an already established relation with the receiving institution. To the selected applicants the ENEN+ is ready to provide mobility grants, which are intended exclusively to cover mobility costs and access fees.

By implementing the ENEN+ project, Lithuanian Energy Institute's PhD student Audrius Graževičius participated in an internship at the Nuclear Research and Consultancy Group (NRG) centre in Petten (the Netherlands)

during the period of 3rd of June – 1st of December 2018. The objective of this scientific internship was concentrated on the improvement of the methodology of Computational Fluid Dynamics (CFD) modelling devoted to numerical investigation of gas mixture processes occurring in the containment atmosphere of a nuclear power plant during a severe accident. To achieve this objective the experiment TH-27 was selected for analysis, which was carried out at THAI+ facility, Becker Technologies GmbH, Eschborn, Germany. The THAI+ test facility has been recently constructed by expanding the experimental facility THAI with the newly constructed parallel attachable drum vessel. The TH-27 experiment featured steam and helium injections and transport and mixing of gasses and steam between the two vessels, as well as wall heating and cooling of different vessels. Thus, during his internship A. Graževičius performed many simulations using *ANSYS Fluent* software to investigate the natural convection with water steam and helium injections in the presence of condensation.

During the internship the existing user defined functions (UDF) were improved, as well new ones were developed. The employment of improved UDFs allowed to simulate the actual experi-

ment results sufficient precisely. A. Graževičius also conducted an analysis of numerical model mesh, estimated the optimal number of iterations per time step and time step size, examined the variation of heat transfer coefficient and the proceeding of condensation process, assessed the turbulence models and other impact for calculation results. Based on obtained results, drafted research conclusions and gained experience on modelling, the CFD modelling methodology was improved towards software modelling of the gas mixture processes occurring in the containment atmosphere of a nuclear power plant.

The education and training programme initiated by the ENEN Association is a great opportunity to broaden knowledge and skills of scientific personnel, to collaborate with foreign researches, to improve and/or get new experience, and hereafter be involved in international projects. The ENEN+ call for mobility grants is open continuously for applications at the ENEN website (<http://plus.enen.eu>) between 1st March 2018 and 30th September 2020 or until funds are available.

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ENEN + Project