Olasz Soma

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Physicist and doctoral candidate in the field of fusion energy, in the field of runaway electron modeling, mainly during tokamak disruptions. My focus was on integrated modeling environments, and integration of various models into the integrated modeling frameworks, to simulate runaway electron evolution with the help of experimental data.

Employment

HUN-REN Center for Energy Research   Budapest
Physicist   2020-
Employed at the HUN-REN Center for Energy Research Fusion Plasma Physics Department on the following projects:

- Runaway electron modeling in the EU-IM and IMAS integrated modeling frameworks
  - Development of runaway electron models in the framework
  - Integration of runaway electron codes to the framework
  - Utilization of Kepler workflows for disruption modeling
- Simulation of runaway electron radiation during JT-60SA disruptions
  - Development of a neural network for runaway electron radiation analysis based on camera images taken during the first campaign

MTA Wigner Research Center for Physics   Budapest
Research associate   Oct. 2018 – Apr. 2019

I participated in the Hungarian fusion research between October 2018 and April 2016 as a research associate. I focused on the runaway electron modeling in the integrated modeling projects in EUROfusion.

Studies

Budapest University of Technology and Economics   Budapest
Doctoral Candidate   2023-2025

Budapest University of Technology and Economics   Budapest
PhD studies   2019-2023

My PhD studies focused on the modeling of runaway electrons in integrated modeling frameworks. I utilized Kepler wokrflows developed in these frameworks to study runaway electron generation in tokamak disruption and I benchmarked the modeling results to experimental results.
I also performed predictive simulations of runaway electron radiation for the Japanese JT-60SA tokamak. During the first experimental campaign, the EDICAM visible camera system detected runaway electron radiation and I worked on a neural network model to better analyze the experimental data.

The University of Manchester Manchester

Mphys Physics with Theoretical Physics 2014-2018

I finished a masters degree at the University of Manchester in Physics with Theoretical Physics course. I studied advanced mathematics, necessary programming and all major areas of physics including classical mechanics, quantum mechanics, electrodynamics, relativity and thermodynamics. I completed several programming projects, including my masters project where I developed a model in Python to describe charged particle transport in plasmas.

My degree classification is 2.1 (Second Class, Division One), equivalent to Hungarian grade 4, with percentile result of 68.7%.

Szent István Highschool Budapest

Hungarian Érettségi in 7 subjects, all with exceptional result 2010-2014

Competencies

- Knowledge of Word, Excel, Power Point
- Programming skills:
  - Python – Code development and data analysis
  - Utilization and development of MATLAB and C# codes
  - Knowledge of bash and tcsh shell languages
- Languages: Hungarian – native speaker
  English – University Degree from the University of Manchester

Projects

Theory Simulation Verification and Validation (TSVV) 2022-2024

A project for the European runaway electron modeling, in which I was responsible for the integration of runaway electron codes into the IMAS integrated modeling framework, to enable simple validation of models against experimental results.

Work Package Code Development (WPCD) 2019-2023

The European integrated modeling project, where I developed and integrated runaway electron models into graphical Kepler workflows. I utilized these workflows for simulation of runaway electron generation in tokamak disruptions.