Python for Electrical Engineering: introduction and electrical machine analysis.

Held by

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Venue: tbd
Date:

- **Python introduction:** Wednesday, 7th June 2023, 3 p.m. - 6 p.m.
- **FEMM with Python**: Wednesday, 14th June 2023, 3 p.m. - 6 p.m.
- **Subdomain with Python**: Wednesday, 21st June 2023, 3 p.m. - 6 p.m.

Abstract

The impact of human emission on the earth's climate has reached a critical level which requires a shift in the paradigm of many aspects of life. The electrification of energy production, transportation and industrial production systems plays a key role in the decarbonization of human activities on earth. In this context, electrical machines are not a new technology but, after the golden period of their first development, we see a period of revamped interest and improvement. In fact, electrical machines are in the spotlight of industries worldwide as they can be found at the heart of many technical solutions proposed and implemented to achieve carbon neutrality. With respect to the late '800s – early '900s, numerical methods are an important and widely spread tool for the design and detailed analysis of electro-magneto-mechanical devices. Furthermore, in the last decade, open source software and new programming languages have gained a lot of interest in both academic and industrial environment, allowing high accessibility, flexibility and improvements in the computational methods.
This seminar aims to provide an introduction to the Python programming language and its application in the field of electrical engineering. In particular, this short course will focus in the analysis of electrical machines through Python. Finite Elements Methods (open source FEMM software) will be used and controlled through Python to design and analyze a permanent magnet machine. This will be used as a benchmark for comparison with respect to the sub-domain numerical method that will be described in its formulation and implementation in the numerical environment.