

## IMPRS UFAST Focus Course Introduction to the Octopus code - Advanced topics

Lecturers: Martin Lueders, Sebastian Ohlmann, Nicolas Tancogne-Dejean, Heiko Appel

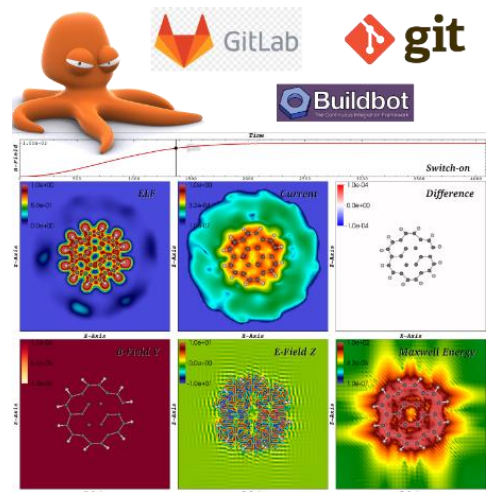
### Abstract:

The Octopus code is a very powerful tool for advanced calculations of the dynamics of matter, interacting with fields and external probes. But the code is also meant to be a developers code, which allows fast prototyping of novel theoretical developments. This course aims at researchers who also want to start developing their ideas in the Octopus framework. We will give an overview of the development framework and the coding standards, but the main part of the course will focus on the structure and some implementation details of the code. With this, the participants will learn everything necessary to contribute to the Octopus development, and to implement new scientific ideas.

### Topics include:

- Development framework (gitlab, buildbot, documentation)
- Object oriented programming: the multisystem framework in Octopus
- Parallelization and performance: batches of grid functions, GPU programming

This second part will last also for one week, with a mixture of lectures and demonstrations, as well as sessions to go through and discuss the code.



25<sup>th</sup> – 29<sup>th</sup> September 2023  
Room: O2.068

09:00 h – 12:00 h & 14:00 h – 17:00 h  
[Register on Geventis I-UF FC4](#)