

# IMPRS UFAST Focus Course

## Numerical Methods and Practical Skills for Computational Physics (Part I): *Practical Skills for Computational Physics*

**Lecturers: Heiko Appel, Henning Glawe**

**Hands-On exercises: Hans Fangohr, Henning Glawe, Nicolas Tancogne-Dejean, and Heiko Appel**

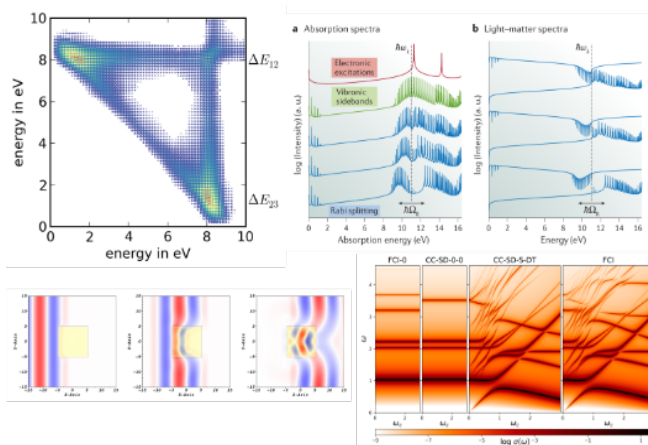
### Abstract:

Theory and experiment have been the two pillars of science that for centuries have underpinned our understanding of the world around us. With the advent of powerful computers, computational methods have emerged as a third pillar of science. Among other techniques, numerical methods, data analysis, and visualization have become indispensable tools for many scientists nowadays. This course intends to introduce basic numerical methods which allow to perform numerical simulations on modern computing platforms.

### Topics include:

- Basic revision control with git
- Collaborative revision control with Gitlab
- Continuous integration with Gitlab pipelines
- Jupyter Notebooks, Jupyter Books, and Gitlab user pages
- Compiling and linking codes
- The Slurm queuing system and module environments

In addition, in the course we provide hands-on exercises for participants to gain experience with high-performance computing environments. Basic Python knowledge, as for example provided by the course "Introduction to Programming with Python for Computational Science" is recommended for this course.



**Online course**

**5<sup>th</sup> – 9<sup>th</sup> February 2024**

**09:00 h – 13:00 h**

**Register on Geventis I-UF FC3-1**