

## IMPRS UFAST focus course

# Advanced Python for Computational Science

Hans Fangohr

## Hands-on exercise : Martin Lange and others

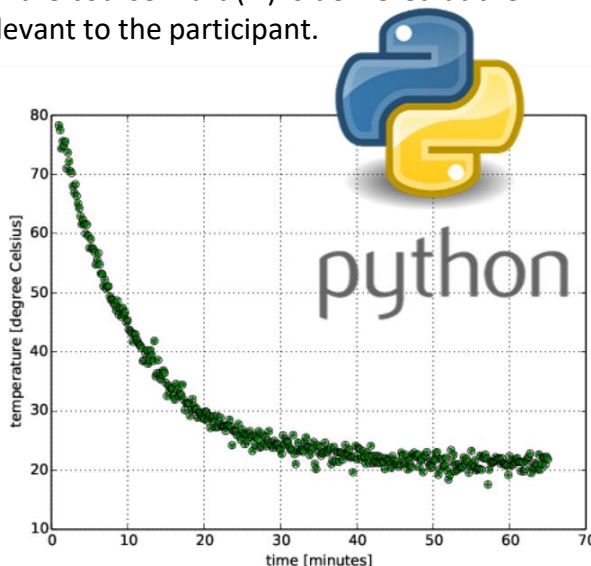
### Abstract:

Building on “Introduction to Python for Computational Science”, this course covers additional aspects: (i) advanced Python, (ii) additional libraries such as numpy, scipy, pandas, sympy, (iii) research software engineering and testing, and (iv) application examples with focus on physics and engineering problems.

Parts (i) to (iii) are covered in the beginning of the course. Part (iv) is delivered at the end of the week, and can be omitted if not relevant to the participant.

### Topics include:

- Higher order functions
- programming paradigms
- scipy, pandas, sympy
- Research software engineering practices, in particular testing
- Python installations
- interpolation, root finding, curvefitting
- Optimisation, computing derivatives
- Integration of ordinary differential equations



### Online Course

23<sup>rd</sup> – 27<sup>th</sup> February 2026

10:00 h -17:00 h

Register via Geventis I-UF FC1-2

or Indico. If you have a Geventis account, you must do both.



Registration deadline: 16<sup>th</sup> February 2026

<https://indico.desy.de/event/50906/>