# First OASYS School at ESRF

# Programme

## COURSE DURATION

The full course lasts three days, although it is possible to attend only one, two or three days. The first day covers simulations of source emission (power and flux) and gives an introduction to simulating a beamline with ray tracing. Day 2 is dedicated to simulating optical systems with wave optics for coherent and partially coherent sources. Day 3 is a code camp to develop new applications in OASYS and perform OASYS-related programming.

### Day 1

This first session is dedicated to calculating the flux and power emitted by synchrotron sources and simulating the beamline elements with ray tracing.

- Source emission (flux and power) using XOPPY
- Ray tracing a beamline with ShadowOui

### Day 2

This second day will be dedicated to simulating optical systems and also a beamline using wave optics methods, and includes:

- Combining ray tracing and wave optics with the HYBRID method
- Describing simple systems showing interference and diffraction using WOFRY
- Simulating a complete beamline with SRW
- Introducing methods for partial coherence: Monte Carlo multi-electron analysis with COMSYL, and coherence mode decomposition with COMSYL.

### Day 3

This third day will be a full-day code camp to learn how to create new OASYS widgets and add-ons. It will also serve as a platform to learn how to automate tasks in making parametric calculations and to perform long runs using scripts that run in a cluster.

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