

# School on Synchrotron Light Sources and their Applications



**23 January - 3 February 2023**  
**An ICTP online Meeting**  
**Trieste, Italy**

Further information:  
<http://indico.ictp.it/event/10057/>  
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The School will introduce young scientists to the design, operation, and research opportunities offered at a modern synchrotron light source and how such sources are realized.

## Description:

The school will be held over two weeks and will consist of three modules: (1) the physical aspects concerning the design and function of the main components: accelerators, insertion devices and beamline optics (2) an overview of the arguments that can be made in order to fund and build a synchrotron light source, including socioeconomic benefit, stakeholder engagement, communication (3) an overview of common synchrotron light techniques including synchrotron infrared techniques and XANES/EXAFS.

## Topics:

- Fundamentals of synchrotron radiation from storage rings
- Fundamentals of X-ray interactions with matter
- Design and operation of storage rings
- Beamline design: Photon transport and optics
- Bending magnets and insertion devices
- Project management at a large facility
- Ancillary devices for light sources
- Socioeconomic justification
- Cultural heritage
- Stakeholder engagement/communications
- Starting up user operations at a new facility
- Industrial Applications
- IR microscopy
- Basics of X-ray crystallography and powder diffraction
- Basics of structural biology
- Fundamentals of X-ray absorption: EXAFS and XANES
- XRF, TXRF, GXRF and their applications in materials and life sciences
- Tomography

## Directors:

**S. CONNELL**, University of Johannesburg, AFLS, South Africa  
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**I. SWAINSON**, IAEA, Austria  
**M. ZEMA**, University of Bari, Italy

## Local Organiser:

**N. BINGGELI**, ICTP, Italy

## How to apply:

Online application:  
<http://indico.ictp.it/event/10057/>

Female scientists are encouraged to apply.

## Registration:

There is no registration fee.

## Deadline:

**5 January 2023**



The Abdus Salam  
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for Theoretical Physics  
[www.ictp.it](http://www.ictp.it)  
Trieste, Italy

