



Infieri 2023

**28/8 to 9/9, 2023, in Sao Paulo, Brazil
at the USP Campus (*Scientia Vincet*)**

<https://infieri2023.ime.usp.br>

VIIth edition of the International Summer School Series on
Intelligent Signal Processing for Frontier Research and Industry
Oxford-2013, USP-2023:10 years fostering cross-disciplinarity

Keywords: *Astrophysics, Applied Physics, Particle Physics, Technological Challenges
for confronting Physics Objectives, Exploiting Synergies, Cross Disciplinary*

Following successful editions in Oxford, Paris, Hamburg, Sao Paulo, Wuhan, Madrid, the 7th edition of this international and global school series will be held, from August 28 to September 9, at the University of Sao Paulo (USP).

Cutting edge instrumentation is a driving force for scientific progress, in Fundamental Research (e.g. Particle Physics or Astrophysics) as well as in many Applied Research fields like New Energies or Nanotechnologies. Novel sophisticated signal processing schemes are a key element in building the advanced instruments of the 21st century. It is around all the aspects of the signal and data processing chain, from on-instrument to the far-hand data processing, that the scientific and technological program of the INFIERI schools is built. Stressing the synergy between different research and applied fields thus fostering cross-disciplinarity.

The program of the 2023 school will cover Advanced Semiconductors, 4D (time, space) Technologies, Photonics, Interconnects, Data Transmission, Big Data, High-Performance Computing, Artificial Intelligence, Quantum Technology, as well as their scientific motivations. As for this last point, some key-chosen examples will cover a range of disciplines, from the exploration and understanding of the universe with large terrestrial telescope and space astronomy, of the elementary particle world with future accelerators and gigantic neutrino experiments and an opening on the applied world focused on new energies (new opening era on Nuclear Energies and Biofuels) and the interface Nanotech, Nanobiology and Nanomedicine.

The top-quality training offered is ensured by international experts from the academia, research centers and industry as well as renowned local academics and researchers.

The intensive three-tier program comprises lectures, keynote talks and hands-on Lab sessions. The lectures take place in plenary morning sessions and the keynote talks in the late afternoons. Essential to the traditions of the school are the laboratory sessions, which allow close interactions with leading experts in fundamental research and instrumentation from academia and industry. A total of around 30 hands-on labs will be offered, covering most of the main topics presented in the plenary lectures and keynotes. The school attendants will have to select 10 Labs among the overall defined list, to fill the 10 hands-on Lab sessions available over the whole school duration. The lab sessions, every afternoon, are a key part of the school, as they complete and deepen the content of the lectures and keynotes. The school ends with a poster session, in which the attendees will present and discuss their academic

and/or research activities in front of their colleagues and of a jury of highly skilled experts that will award the best 3 posters.

This year, as a première in this international event, an Industry Partner Symposium on "*High Tech & Fundamental Research: the Unpareil Link*" fills the morning session of the last day of the school. The 4-hour symposium will be organized around about six high-tech companies that will discuss, with presentations and a round table discussion, their technologies and the win-win interplay they have with the fundamental and applied research.

The target school audience is MSc and PhD students, postdocs and early-career researchers across the Physical, Engineering and Computer Sciences. All the school attendants have to be registered at the school and to follow the overall program.

Besides, as the tradition in this school series, the lectures and keynotes are widely attended by to the academics and staff researchers contributing to the school, as well as opened to those from USP or from the Sao Paulo metropolitan area.

SCHOOL HIGHLIGHTS

The lectures and keynotes will be held at the Auditorium of the Polytechnic School; the hands-on Lab sessions will be held at the INOVA-USP, Innovation Center, the IPEN-CNEN (Nuclear and Energy Research Institute-National Nuclear Energy Commission), the IMT Maua Institute of Technology, the Tokamak Lab part of the Plasma Group at the IF-USP and the Pelletron accelerator at the USP Nuclear Physics Open Laboratory.

- Morning sessions: total of 40 hours of Plenary Lectures
- Afternoon sessions: total of 30 hours of Hands-on Labs
- Evening sessions: total of 20 hours of Plenary Keynotes
- Industry Partner Symposium: 4 hours
- Poster session: 4-5 hours of attendees' presentations

DETAILED SCHOOL PROGRAM

<https://indico.cern.ch/event/1221962/timetable/>

ONLINE REGISTRATION (** free of charge **)

<https://indico.cern.ch/event/1221962/registrations/>



INFIERI school, summer 2021, at Autonoma University, Madrid, only in-person event in the time of COVID!
<https://cerncourier.com/a/fostering-cross-disciplinarity/>

For examples of the program of the previous schools: <https://indico.cern.ch/category/4891/>