



The Abdus Salam  
International Centre  
for Theoretical Physics



# Joint ICTP-IAEA Workshop on Advanced Technologies in Laser-Driven Radiation Sources and their Applications

## Description:

Recent advances in high-power laser technology have led to the development of lasers producing extremely short light pulses in the range of femto-seconds with very high intensities.

By guiding these pulses onto a solid foil, intense sources of photons, ions and neutrons can be produced, which can subsequently be used for a wide spectrum of applications. In addition, as laser based techniques could support accelerating electric fields at least four orders of magnitude larger than those of conventional accelerators, the goal of producing compact and portable particle accelerators appears now to be feasible.

## MORE DETAILS:

Young researchers interested in laser-driven radiation sources and their potential for innovation will find this workshop helpful in developing an in depth understanding of the basic operation principles of laser-driven accelerators and their contribution to socio-economic development through a wide range of applications, such as non-destructive methods in aerospace, radiographic imaging of large objects, in-operando diagnostics of lithium-ion batteries, radiation processing to fabricate smart, functional materials, active interrogation of sensitive nuclear materials and many others.

## TOPICS:

- Nuclear physics aspects in laser-driven accelerator technologies
- Basics of laser physics used to produce and accelerate neutrons, ions and X-rays
- Laser-driven accelerators: operation principles and instruments
- Advances in target and moderator schemes for laser-driven neutron production
- Detector instrumentation used in laser-driven neutron and X-ray production
- Overview of laser-driven neutron sources and their applications
- Special topics in applications of laser-driven neutron sources (Proliferation, Radiography, Security, Fusion)

## SPEAKERS:

I. POMERANTZ, Tel Aviv University, Israel  
M. ROTH, TU Darmstadt, Germany  
S. VOGEL, LANL, USA  
K. SPOHR, ELI-NP, Romania  
M. ZIMMER, TU Darmstadt, Germany



**15-18 April 2024**



**Trieste, Italy**



**Deadline:  
5 February 2024**

## DIRECTORS:

S. CHARISOPOULOS, IAEA  
M. ROTH, TU Darmstadt, Germany  
K. KANAKI, IAEA

## LOCAL ORGANISER:

R. KAISER, ICTP

## FURTHER INFORMATION:



E-mail: [smr3930@ictp.it](mailto:smr3930@ictp.it)

Web: <https://indico.ictp.it/event/10468/>

Female scientists are encouraged to apply.

## GRANTS:

A limited number of grants are available to support the attendance of selected participants, with priority given to participants from developing countries. There is no registration fee.

