



# **Joint IAEA–French Alternative Energies and Atomic Energy Commission Workshop on Muon Tomography: From Basic Principles to Practical Usage and Applications**

**Hosted by the**

**Government of France**

**through the**

**Division of Electronics, Detectors and Computing for Physics and Institute of Research into the Fundamental Laws of the Universe**

**Gif-sur-Yvette, France**

**17 - 28 June 2024**

**Ref. No.: EVT2205744**

## **Information Sheet**

### **Working Language(s)**

English

### **Introduction & Objectives**

The use of muons produced at the Earth's atmosphere as radiation source for the scanning of big structures is usually referred to as muography. This technique was proposed soon after the atmospheric muons discovery and has been the basis of several experiments, like the Chephren pyramid muography attempt carried out by Alvarez in the 1970s. However, the range of applications of this technique has

been broadened in the last years. This has been mainly due to the advances on the particle detectors used to reconstruct muon events as well as to the improvements on the associated analysis techniques. Thus, different muography measurements have been done for such various applications as vulcanology, archaeology, geotechnics, civil engineering or nuclear safety.

This training workshop aims to:

- Give a general introduction about muography, its principles, methods and applications.
- Introduce trainees to the instrumentation used in the muography setup of the host institute.
- Discuss the various modes of operation of the muography technique.
- Introduce trainees to the data treatment and image production procedures with the aim to showcase the potential of muography for various applications.

## Target audience

The training is targeting potential or current users of muography systems. Applicants should indicate in their application their level of experience with C++/python or other programming languages. Experience with Geant4, MonteCarlo methods and analyses and ROOT will be appreciated.

## Participation and Registration

All persons wishing to participate in the event have to be designated by an IAEA Member State or should be members of organizations that have been invited to attend.

In order to be designated by an IAEA Member State, participants are requested to send the **Participation Form (Form A)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) for onward transmission to the IAEA by **18 March 2024**. Participants who are members of an organization invited to attend are requested to send the **Participation Form (Form A)** through their organization to the IAEA by the above deadline.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and financial matters.

Participants are hereby informed that the personal data they submit will be processed in line with the [Agency's Personal Data and Privacy Policy](#) and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required. The IAEA may also use the contact details of Applicants to inform them of the IAEA's scientific and technical publications, or the latest employment opportunities and current open vacancies at the IAEA. These secondary purposes are consistent with the IAEA's mandate.

## Papers and Presentations

The IAEA encourages participants to give presentations on the work of their respective institutions that falls under the topics listed in above Topics Section.

Participants who wish to give presentations are requested to submit an abstract of their work. The abstract will be reviewed as part of the selection process for presentations. The abstract should be in A4 page format, should extend to no more than 2 pages (including figures and tables). It should be sent electronically to Ms Kalliopi Kanaki, the Scientific Secretary of the event (see contact details in below Visas Section), not later than. Authors will be notified of the acceptance of their proposed presentations by.

In addition, participants have to submit the abstract together with the **Participation Form (Form A)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or their organization for onward transmission to the IAEA not later than.

## Expenditures and Grants

No registration fee is charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the event. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants. Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the event.

The application for financial support should be made using the **Grant Application Form (Form C)** which has to be stamped, signed and submitted by the competent national authority to the IAEA together with the **Participation Form (Form A)** by **10 March 2024**.

## Visas

Participants who require a visa to enter France should submit the necessary application as soon as possible to the nearest diplomatic or consular representative of France.

# Organization

## Scientific Secretary

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Subsequent correspondence on scientific matters should be sent to the Scientific Secretary/Secretaries and correspondence on other matters related to the event to the Administrative Secretary.