

THIRD TRAINING WORKSHOP ON THE SAFE OPERATION AND APPLICATIONS OF NEUTRON GENERATORS, AUSTRIA

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The Third Training Workshop on the Safe Operation and Applications of Neutron Generators was held on 4th until 15th November 2024 in the Nuclear Science and Instrumentation Laboratory, Seibersdorf, Austria. This training has been hosted by the Division of Physical and Chemical Sciences, Department of Nuclear Sciences and Applications, International Atomic Energy Agency (IAEA).

Through lectures and useful hands-on activities, the workshop aims to teach the participants to safely operate and utilize neutron generators, including demonstrating their applications and related modelling tools. Nine participants from Malaysia, Indonesia, Slovakia, Algeria, Tanzania, Ghana, Jordan, Syria, and Lebanon attended the workshop.

The workshop spans two weeks, offering a mix of lectures, hands-on training, and interactive sessions:

1. **Radiation Safety and Facility Tours:** Workshop began with introductions and a basic lecture on radiation safety. This is complemented by a guided tour of the facility to familiarize attendees with the operational environment.
2. **Technical Training and Lectures:** Neutron physics, nuclear electronics, and neutron detector technologies are among the main subjects covered. Practical sessions ensure participants gain hands-on experience in these areas.
3. **Advanced Applications:** Neutron Activation Analysis (NAA), which includes delayed gamma, prompt gamma, and cyclic NAA techniques is the main application that has been taught. This sessions also explore the utilization of neutron generator pulsing for enhanced analysis.
4. **Neutron Radiography:** Participants gain important knowledge on imaging methods and their uses in a variety of disciplines from hands-on sessions on neutron radiography.
5. **Neutron Spectrometry:** Advanced training on Bonner sphere spectrometry and other neutron spectrometry techniques has been provided.
6. **Nuclear Material Characterization:** Participants examined delayed neutron counting, neutron multiplication measurement, and uranium sample gamma spectrometry.
7. **Lab Setup and Commissioning:** Discussions on laboratory setup, safety analysis, and commissioning procedures are meant to provide participants with the knowledge needed for establishing facilities for neutron generators.
8. **Visit to AtomInstitut:** The program includes an educational visit to AtomInstitut, providing additional exposure to cutting-edge research and facilities.



Briefing on the operation and safety of neutron generators.



Data analysis session with the experts on NAA.



Visit to AtomInstitut, Vienna.



The experts and participants of Third Training Workshop on the Safe Operation and Applications of Neutron Generators.