

Nuclear Forensics

is the examination of nuclear and other radioactive materials using analytical techniques to determine the origin and history of this material in the context of law enforcement investigations or the assessment of nuclear security vulnerabilities (definition of the International Atomic Energy Agency (iaea.org)).

In this Hands-on-Training, physical and chemical separation techniques are used to perform ultra-trace-analysis of radioactive material sampled in contaminated environments, e.g. after nuclear powerplant accidents.

Target group

This course is delivering basic understandings of sample preparation, analytical separation using auto- and electrodeposition the use of scanning-electron-microscopes and ToF-SIMS measurements.

Participants should have interests in nuclear physics and analytical chemistry and basic knowledge of chemistry, the physics of radioactive material and should have some practical experience in the lab.

Augmented CINCH

The Augmented-CINCH (Cooperation in Education and Training in Nuclear Radiochemistry) project started in October 2020 as the successor to the MEET-CINCH project. 16 partners from 12 European countries take part in finding new ways to educate in the fields of nuclear and radiochemistry (NRC).



These new educational methods include the use of different variants of lessons, MOOC's, RoboLabs, high school teaching packages and 'learn through play' concepts with virtual laboratories and augmented and virtual reality applications.



This project has received funding from the Euratom research and training programme 2019-2020 under grant agreement No. 945301.



HANDS-ON-TRAINING in NUCLEAR FORENSICS

29.08. - 02.09.2022
in Hannover, Germany



Organization

The Hands-on-Training will be held at the Institute of Radioecology and Radiation Protection of the Leibniz University Hannover.

Distance learning via CINCH Moodle (see and sign up at moodle.cinch-project.eu) will take place before the practical course, which is accompanied by theoretical lessons in person.

All teaching will be in English.

Location

Institut für Radioökologie
und Strahlenschutz (IRS)
Herrenhäuser Str. 2
Building 4113
30419 Hannover
Germany

Registration

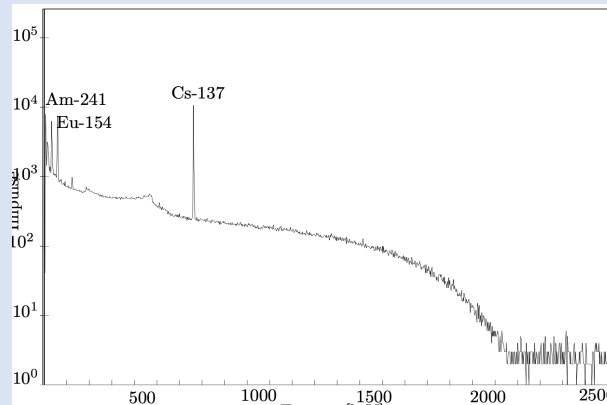
Please sign up on the [CINCH VET e-Shop](#) and send the filled-in [form](#) to Tobias Weissenborn (weissenborn@irs.uni-hannover.de).

No course fee will be charged to the participants and a budget exists to support travel and accommodation expenditures of the participants.

Application deadline is 15 July 2022.

E-Learning

The CINCH Moodle online course consist of general information about the field of nuclear forensics and radioactive decay, as well as practical and background information about the experiments of the Hands-on-Training.



Evaluation of different kinds of data

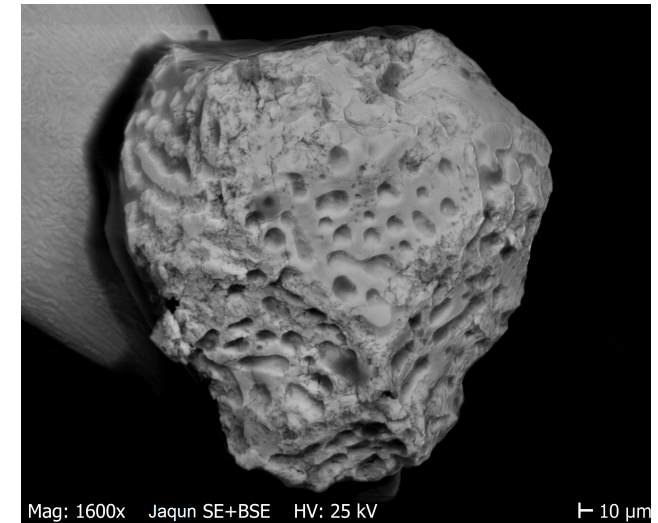


Search for radioactive particles

Practical Course

Determination of isotopic ratios and characterization of Chernobyl "Hot-Particles" (nuclear fuel fragments):

- Preparation of Chernobyl soil samples
- Scanning-electron-microscope analysis of the samples
- Extraction of single particles
- Preparations for ToF-SIMS measurements



Separation of radiosilver from radiocesium:

- Ultra-trace-analysis in the presence of concomitant gamma-emitters
- Autodeposition of radiosilver