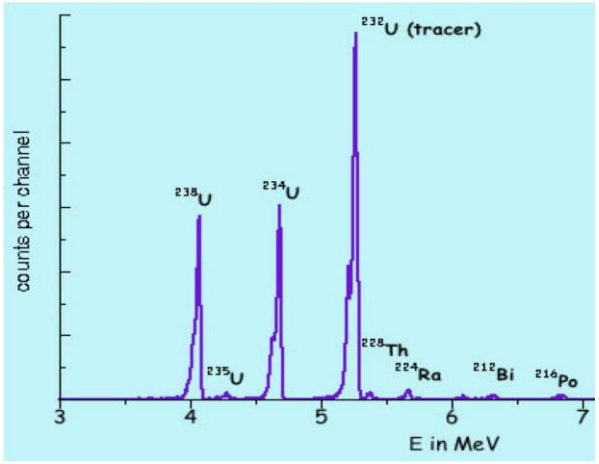
Target group

This training course aims to deliver the basics of alpha, beta and gamma spectroscopy techniques for the determination of radionuclides in environmental samples.

Participants should have interests in analytical radiochemistry, basic knowledge on radioactive decay, analytical chemistry and detection of radionuclides.

Objectives

- to get familiar with the radiochemical analysis of alpha, beta and gamma emitters by radiometric techniques
- to gain understanding of basic principles of radiochemical analysis
- to get familiar with alpha, beta and gamma spectrometry
- to be able to understand radiochemical analytical procedures and apply them on practical problems
- to gain practical skills of working in radiochemistry laboratory
- to gain practical skills of handling radioactive materials



meet cinch

http://www.cinch-project.eu

MEET-CINCH is a HORIZON 2020 EU Framework Program project aiming to improve and evolve nuclear chemistry education and training in Europe.

The project closely collaborates with the European Network on Nuclear Chemistry Education and Training aiming to shift the education and training in nuclear chemistry to a new level.

Institut "Jožef Stefan" Ljubljana, Slovenija

University of Cyprus

meet cinch

HANDS-ON TRAINING ON ANALYSIS OF ALPHA, BETA AND GAMMA EMITTERS BY RADIOCHEMICAL SPECTROSCOPIC TECHNIQUES

Ljubljana

9-13 December 2019

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Euratom research and training programme 2014-2018 under grant agreement No 754 972

ORGANISATION

The course is organised by the MEET-CINCH consortium and consists of an e-learning component and a practical session. The e-learning component comprises approximately 20 hours of study and on-line quizzes and is to be completed in advance of attending the practical hands-on training session.

The following practical Hands-on training will take place at the Jožef Stefan Institute, Department of Environmental Sciences.

All teaching will be in English.

LOCATION

Jožef Stefan Institute
Department of Environmental Sciences
Brinje 40
SI-1000 Ljubljana
Slovenia

REGISTRATION

For detailed information, please visit the MEET-CINCH web page to download the application form (www.cinch-project.eu/events/courses/). Send the filled-in form to Marko Štrok (marko.strok@ijs.si).

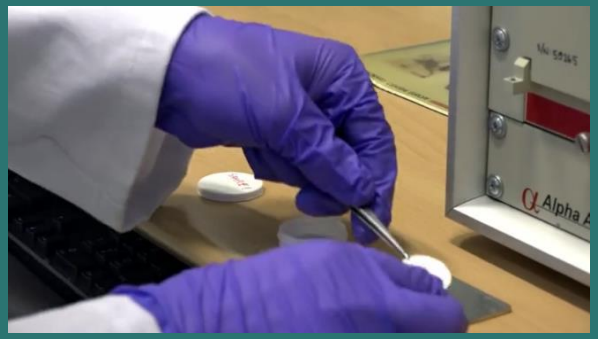
No course fee will be charged to the participants and a small budget exists to support a limited number of participants.

Application deadline is 4 November, 2019.

TRAVEL INFORMATIONS

https://www.fraport-slovenija.si/en/Main

https://www.openstreetmap.org/way/533841



E-LEARNING

The e-learning part will take place at moodle.cinch-project.eu.

Introduction to radiochemical spectroscopic analysis of alpha, beta and gamma emitters with theoretical considerations.

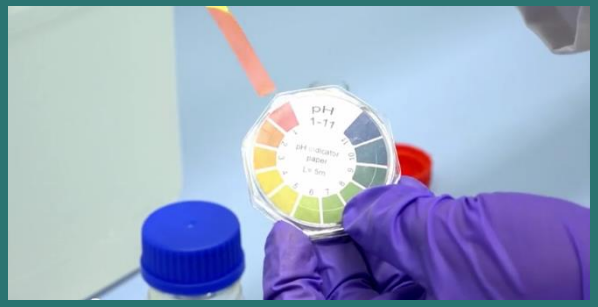
Gamma spectroscopy of environmental samples.

Determination of uranium by alpha-particle spectrometry.

Determination of Po-210 by alpha-particle spectrometry and Pb-210 by beta counting.

Self Assessment/Assessment

Participants have to successfully finish this course before entering the on-site course.



PRACTICAL SESSION 9-13.12.2019

Hands-on experience on determining uranium, Po-210, Pb-210 and Cs-137 in water

Laboratory work and exercises (introduced by theoretical lectures and discussion sessions):

- Filtration and pre-treatment of water samples
- Radionuclides pre-concentration from water samples
- Cation-exchange separation of uranium from seawater sample
- Preparation of Cs-137 on AMP counting source for gamma spectrometry
- Separation of Po-210 and Pb-210 using Sr resin
- Preparation of counting sources for alpha, beta and gamma spectrometry
- Measurement of alpha, beta and gamma emitters
- Calculation of results for Cs-137, uranium, Po-210 and Pb-210 with measurement uncertainties
- QA/QC in radionuclide determination
- RoboLab gamma spectroscopy of environmental samples