



# ENEN2plus $^{14}\text{C}$ Workshop



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for event web

Five days hands-on training on radiocarbon for master students. Sample preparation, AMS measurement, and data processing. With your own materials. 15–19 July 2024.

## **Background**

Carbon is essential to life. In nature, it is found as element (diamond, graphite) and in many different organic and inorganic compounds. It occurs as a mixture of two stable isotopes ( $^{12}\text{C}$  and  $^{13}\text{C}$ ) and one radioactive isotope ( $^{14}\text{C}$ ) with a half-life of 5730 years. The isotopes differ by mass, however, they are very similar chemically. The radioactive  $^{14}\text{C}$  atoms are constantly generated during interactions of cosmic rays with the atmosphere and eventually enter the carbon cycle.  $^{14}\text{C}$  was produced in large quantities by above-ground nuclear tests. Some  $^{14}\text{C}$  has been released from nuclear power plants and reprocessing of spent nuclear fuel. Fossil fuels are free from  $^{14}\text{C}$  as they are too old for survival of this radioactive isotope.

The most sensitive method for  $^{14}\text{C}$  measurement today is accelerator mass spectrometry (AMS). The quantity of  $^{14}\text{C}$  helps in radiocarbon dating, wildlife crime control, forensic analysis of works of art, differentiation between fossil and bio-fuels, monitoring of nuclear power plant releases, to list just a few examples.

### **Interested master students**

Submit proposal

Wait for committee decision

### **Selected eight participants**

Consult event web for details

Collect samples, send to lab

Summer Workshop (in English)

### **Proposal structure (two A4 pages)**

Consult event web for details

Proposer name, school and class

Motivation in one paragraph

Goal of the measurement

Description of materials of interest and procedures for obtaining samples

### **Workshop Place**

CRL Radiocarbon laboratory  
Prague and Rez, Czech Republic

### **Organizer**

Nuclear Physics Institute  
Czech Academy of Sciences

Jan Kameník, Ivo Světlík,  
Kateřina Pachnerová Brabcová

### **Timeline**

(all in year 2024)	Deadline
Proposal submission	11 February
Decision announced	29 February
Samples at laboratory	31 May
Workshop	15–19 July

You do not need to be an expert in nuclear physics. Interesting ideas and representative samples are sufficient. We help you to do the rest.



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