

## Alpha Spectrometry Hardware - In-Situ Measurement

In addition to outdoor measurement of radon in air one may measure the concentration of alpha particle emitters with in-situ equipment that is powered by a car battery. An example of such equipment is shown in the picture below.



The system is a “standard” laboratory alpha spectrometer consisting of a NIM crate with alpha chamber, ADC and MCA (the small block in front of the NIM crate), laptop computer for data measurement, storage and analysis and a small vacuum pump. The in-situ capability of the system comes from the black unit in the foreground which is a DC-to-AC converter that is powered from the car battery and provides 220V~ for the whole system.

Sample preparation for in-situ measurements normally cannot make use of refined chemical methods of separation and production of thin samples, but one will measure thick samples instead. Typical production methods for suitable samples are:

- Evaporation (water samples)
- Burning/Ashing (organic samples)
- Pulverization (soil and rocks)