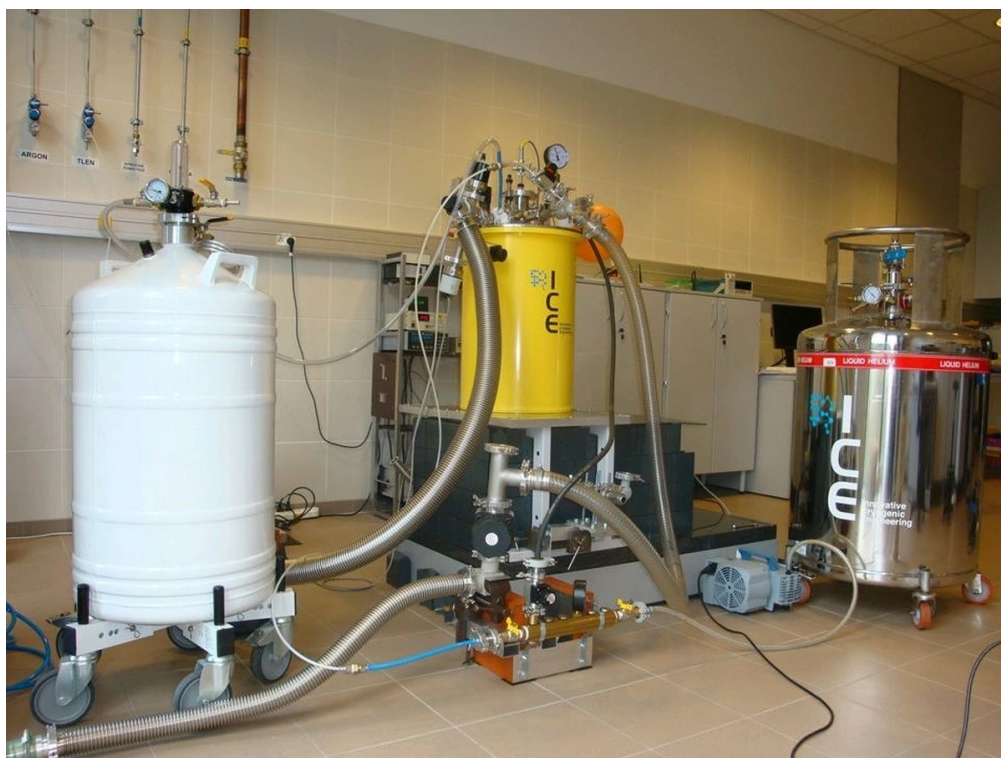


## Mössbauer spectrometer



### Technical description:

Renon's new generation MS-4 digital Mössbauer spectrometer includes a radiation detection block including a detection head, a nuclear block, and vibrator control and system control blocks. It is equipped with a laser source movement speed calibrator. The spectrometer's detection head includes an integrated preamplifier and high-voltage power supply. The nuclear block enables the simultaneous analysis of four spectra: two Mössbauer spectra and  $\gamma$  amplitude spectra collected in the coincidence and anticoincidence modes with the window of a single-channel analyzer. One of the spectra can be replaced by data from a laser speed calibrator.

**Trade name:** MS-4 Renon

**More details:** </equipment/spektrometr-mossbauerowski/>

**Access type:** External

**Type of accreditation / certificate:** Not applicable

**Contact person:** Bilovol Vitaliy

**Contact person url:** <https://skos.agh.edu.pl/osoba/vitaliy-bilovol-9845.html>

**Responsible body:** Academic Centre for Materials and Nanotechnology

**Group / laboratory / team:** Department of Functional Materials and Nanomagnetism

**Last update date:** March 10, 2025, 1:27 p.m.

**Year of commissioning:** 2013

**IDUB research areas:**

(PRA 7) Design, production, and testing of modern materials and the technologies of the future based on a multidisciplinary approach combining materials engineering with chemistry, physics, mathematics, and medicine

**Research capabilities:**

Investigation of local electronic (oxidation state), structural (electric field gradient) and magnetic (ordering temperatures, anisotropy, internal magnetic field) properties of samples containing Fe, Sn or Eu compounds. Quantifying the composition of multiphase samples and estimating the average size of iron-based nanoparticles. Investigation of submicron-thick layers using conversion electron sensing technique (CEMS).

**Measurement capabilities:**

Układ spektrometru jest wyposażony w zalewowy kriostat helowy (firmy IceOxford), umożliwiający pomiary w zakresie temperatur  $1.5 \div 300$  K. Chłodzony wodą próżniowy piecyk mössbauerowski firmy Elektronika Jądrowa pozwala na pomiary w zakresie temperatur od 300K do 1100 K. Zakres prędkości wibratora: od  $\pm 0.5$  do  $\pm 150$  mm/s

**Conditions for providing infrastructure:**

Apparatus made available on the terms resulting from the Regulations for the Use of ACMiN Research Infrastructure. ([https://acmin.agh.edu.pl/home/acmin/5\\_Wspolpraca/Aparatura/Zasady\\_i\\_koszty\\_korzystania\\_z\\_infrastruktury\\_badawczej\\_ACMiN.pdf](https://acmin.agh.edu.pl/home/acmin/5_Wspolpraca/Aparatura/Zasady_i_koszty_korzystania_z_infrastruktury_badawczej_ACMiN.pdf))