RadioRoSo Review Meeting

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Státní ústav radiační ochrany, v.v.i.
National Radiation Protection Institute
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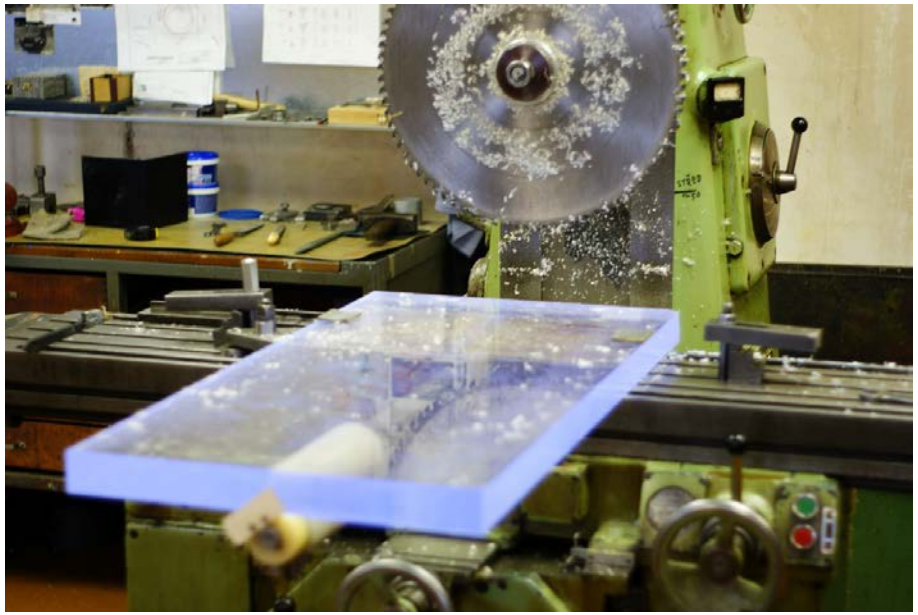
SÚRO

- Public research institute
- Established by by State Office for Nuclear Safety (SÚJB) in 1995
- Continues the long lasting tradition of the Centre of Radiation Hygiene of the National Institute of Public Health in Prague
- Aims: to support SÚJB in the field of radiation protection:
  - measurements and expertise
  - data acquisition and data processing (RMN), intercomparison
  - preparing and/or estimating methodology, guidance, recommendations
  - participating in education, public information
  - research

Detectors



Plastic scintillation detector by Nuvia
Material: modified polystyrene
Dimensions: 40x60x5 cm
Pros:
Good detection efficiency
Customizable dimensions
Cons:
Low spectral resolution (30%-40%)

Detectors

Kromek GR1-A
Semiconductor detector: 1cm^3 CZT
CZT – CdZnTe
Pros:
Good detection efficiency
No cooling needed
Small & lightweight
Cons:
Only small dimensions are possible

Detectors

Timepix (model Modupix) by Advacam
Thin semiconductor detector (Si, CdTe, GaAs)
1.4 × 1.4 cm; 300 μm thick Si
Bump-bonded to pixelated readout - 256 × 256 pixels
Each pixel acts as an energy spectrometer
Ionizing radiation particles leave characteristic tracks

Pros:
Possibility to detect and recognize whole range of radiation (alpha, beta, gamma, neutrons with converters) in the energy range meV-MeV

Cons:
Thin detector -> gamma spectroscopy limited

Choice of detectors

- Radionuclides are known, so there is no need for radiation categorization – we did not use Timepix detector
- Large plastic scintillator is placed under the tray (statically)
- Kromek CZT detector mounted directly on the gripper
- The signal is continuously monitored via TTL output

Application