

# Measurement of very low Rn activities and Rn diffusion in thin foils. Apparatus for measurement of Rn emanation

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Group of IEAP CTU in Prague is for a long time involved in radon detection in the frame of SupereNEMO experiment. The sensitive radon detector of hemispherical shape with the volume of 50 litres has been constructed and tested (measurement of efficiency, 30%, and measurement of background,  $11 \pm 1$  events/day in the energy region of 6.2-7.8 MeV peak of  $^{214}\text{Po}$ ). The detection limit of the apparatus was obtained as 12 mBq/m<sup>3</sup> for one day measurement.

Testing device for measurement of radon diffusion through thick shielding foils has been also constructed. Lowest Limit of Detection (LLD) of this device for the radon diffusion coefficient D was obtained at the level  $\sim 10$ -18 m<sup>2</sup>s<sup>-1</sup>. Different samples of shielding foils were tested and the obtained results are presented.

To be able to detect low radon activities emanated from material samples, small apparatus with volume of 6 litres has been produced. The apparatus uses again electrostatic collection of radon progenies on Si PIN diode. The background of the emanation device has been measured at the level of  $7 \pm 1$  events/day in the energy region of 6.2-7.8 MeV.

## Summary

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