



European Physics Conference 2018

December 6-7, 2018 Valencia, Spain

Quantitative Interpretation of Air Radioactivity Fluctuation in the Area around Ifin-Hh

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The paper presents the fluctuation of the atmospheric radioactivity level due to the nuclear activities of the HoriaHulubei National Institute for R&D in Physics and Nuclear Engineering, IFIN-HH, Bucharest, Romania. The Institute has departments that carry out research and application activities in the nuclear field. During this period, the new Extreme Light Infrastructure-Nuclear Physics project is being developed. The studies refer to radioactivity measurements in aerosols samples taken from two strategic and representative. The duration of each sampling was 5 hours using the special pump. A volume of about 20 m³ was aspirated on to a special filter. Each filter was measured gross alpha / beta / gamma in several stages for the determination of radon concentration and descendants but also artificial radionuclides. The data presented in the paper are for the period 2017. The values of the radioactivity concentration in the measured samples were: i) 3 minutes after suction in the range 0.5 – 5.90 Bq / m³; ii) 24 hours after aspiration, within 0.15 – 0.22 Bq / m³; iii) 5 days after aspiration, within 0.003 – 0.014 Bq/m³ for artificial beta-emitting radionuclides; iv) 5 days after aspiration, in the range 0.040 – 0.053 Bq / m³ for artificial gamma emitting radionuclides. From the researches carried out it was found that the level of radioactivity in the studied area is under maxim admissible value. All the values were comparable to the previous years and the national one. Thus, the impact on the environment, the professionally exposed person and the population was negligible.

Keywords: Aerosols, Measurements, Radioactivity Level, Air Quality.

Biography:

Ana Stochioiu head of the Laboratory for Dosimetry of Personnel and the Environment of IFIN-HH. She deal with dosimetry of personnel and environment with passive dosimeters. She coordinate the activity of monitoring the radioactivity of the environment in the area of influence of IFIN-HH, ELI-NP and institutes on the Magurele platform. The data obtained within these activities and research activities in the projects in which they are involved are presented in scientific papers at workshops, conferences and congresses internally and internationally.