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Monitoring of Indoor Radon Pollution

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Abstract. In this work the relation among building materials, insulation systems, and indoor radon pollution is evaluated. The work is part of a larger monitoring in progress in the Calabria Region (Southern Italy).

The area under investigation is San Giovanni in Fiore (CS) located in the Sila upland plain. An annual monitoring is carried out in many buildings of the Sila area, with reference to their different building materials. The relationship between age of buildings and radon concentration is also considered.

Nuclear tracks detector has been used (SSNTD, Solid State Nuclear Track Detector). Obtained results underline that the buildings realized with the local granite rock have greater indoor radon concentrations.

The local granitic rocks, representative of the geologic area, have been analyzed by gamma spectrometry constituted by Canberra system HPGe fixed detector cooled by liquid nitrogen high radio-emission values of standard radionuclides as ^{226}Ra , ^{232}Th and ^{40}K .

Keywords. Evaluation, Measurement system, Radon, radionuclide, building materials, nuclear track detector.

Introduction

Radon gas is a radioactive, colorless, odorless, tasteless noble gas, occurring naturally as an indirect decay product of uranium or thorium. Radon is one of the densest substances that remain a gas under normal conditions. Epidemiological studies [1], [2] have shown a clear link between breathing high concentrations of radon and incidence of lung cancer. Thus, radon is considered a significant contaminant that affects indoor air quality. According to the United States Environmental Protection Agency, radon is the second most frequent cause of lung cancer, after

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