Solid-State Nuclear Track Detectors for Radon Measurements in Soils

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Abstract. Development of living infrastructures and the focus on energy efficiency of the households will maintain importance of the radon monitoring across the world. The active prevention and an application of appropriate protection can save resources and, in special cases, lives. Therefore, this paper focuses on the development of soil radon measurements utilizing solid state nuclear track detectors as an affective and simple method for determination of the radon in soil. The entire procedure is based on calibration of new design equipment and intensive testing in environmental conditions. Calibration proved almost perfect linearity of measured values compared to reference values. Thus, new correction factors could be determined and environmental measurements started. Two localities were selected to test the methodology, direct measurements of the in soil in two shafts and harsh condition measurements in two Slovak caves. The results achieved will be used to optimize the measurement procedure and define requirements for wider usage.