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## **A NEW METHOD FOR THE EVALUATION OF RADON CONCENTRATION WITHIN A DEDICATED VESSEL**

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### **Abstract**

Evaluation of radon concentration is a very difficult task and a very important issue, in relation to the protection of human health. This is especially the case when there is an increase in concentration of radon on a deterministic basis, as is the case of nearby phosphogypsum residues or geological characteristics. Radon gaseous that can be found in the environment occurs mainly from natural radioactive decay chains. The gamma ray spectroscopy is a powerful tool in order to monitor the environmental radioactivity. In this paper it has been measured and analyzed the radon concentration in a stainless steel vessel in order to provide further evidence about the deterministic chaos character of smaller time series recorded data. We have found that the fractal dimension of the radon concentration and recorded environmental parameters in the experimental vessel are strongly influenced by small variations of the initial conditions, that is proving the chaotic behavior of the measured parameters.

*Key words:* environmental radioactivity, radon monitoring, stainless steel

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