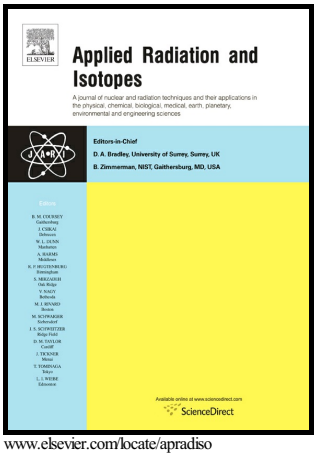

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Development of the absolute standardization apparatus for radon-222 activity

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Abstract

A defined solid angle counting apparatus for radon-222 activity absolute measurement is presented. Two home-made vacuum sealed radium-226 sources with radioactivity of 500 kBq and 3MBq are used to minimize the impact from gas impurities. The defined solid angle is calculated using precisely measured geometrical parameters by several algorithms.The result from Monte Carlo simulation agrees with results obtained by other methods within the estimated uncertainty limit. Alpha particle's scattering behavior in the measurement chamber and collimator is simulated by the geant4 code and a total scattering alpha particle ratio of

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