



Contribution ID: 215

Type: **Poster**

Gamma external radiation dose for Mexican population

Wednesday 19 September 2012 18:00 (1h 50m)

Since 1992 the Chemistry Faculty of the National University of Mexico has been performed studies about environmental natural radioactivity, gamma, radon and thoron levels in the Metropolitan Zone of Mexico City (MZMC) and other cities like the Metropolitan Zone of Guadalajara (MZG). This work report the gamma absorbed dose rate measured at the beginning with Ca SO₄: Dy + PTFE and in the last studies with a LiF; Mg, Cu, P+PTFE thermoluminescent dosimeters developed at the National Institute of Nuclear Research, ININ. This dosimeter fulfills the ANSI-N-545 code for environmental monitoring. Each dosimetric-plastic package contains two pellets, that were placed at 1.50 to 2 m above the floor at indoor dwellings and exposed. The total sampling period was one year divided in four periods of three months each one. TLD's were evaluated in a Harshaw analyzer Model 4000 coupled to a PC. Mean arithmetic value of gamma absorbed dose rate at indoor air in the MZG dwellings (not-subtracted cosmic background) was 0.12 $\mu\text{Gy}\cdot\text{h}^{-1}$ as mean with fluctuations from 0.07 to 0.15 $\mu\text{Gy}\cdot\text{h}^{-1}$. The arithmetic mean value is higher than that obtained in the Metropolitan Zone of Mexico City, in spite that the MZG altitude is lesser than the first one; % RMD average precision for duplicate pairs of gamma exposure rate was lower than 5%. Taking into account the conversion factor of 0.7 Sv.Gy⁻¹ for gamma-rays and an indoor occupancy factor of 80% the annual effective equivalent dose was calculated and compared to the to the world average.

Author: Prof. MARTINEZ, Trinidad (National University of Mexico, Mexico)

Co-authors: Mr RAMIREZ, Alejandro (National University of Mexico); Dr NAVARRETE, Manuel (National University of Mexico, Mexico); Dr GONZALEZ, Pedro (National Institute of Nuclear Research)

Presenter: Dr NAVARRETE, Manuel (National University of Mexico, Mexico)

Session Classification: Poster Session

Track Classification: Radioactive elements in the environment, radiation archeometry and Health Physics