

UV illumination, samples were placed under 254 nm UV lamp for 90 min. The signal of PTTL is only around 2 % of the TL's due to a low density of high temperature deep traps. A signal difference of PTTL between samples showed up to 2 times which indicate a high variation in a density of deep trap between samples. Various thermal treatments after each PTTL measurement were carried to remove the residual PTTL signals. A condition of 250°C / 20 min with the UV exposure fully resets the residual signal to the same level of the dual-step annealing and 8 repeat measurements were assured without TL peak degradation. Dose response of PTTL in the range of 1.14 to 51.3 mGy was measured. Zero dose and minimal detectable dose (MDD) were also verified using the PTTL signal after dual-step thermal anneal.

---

### **Influence of the vials radioactive residue in Nuclear Medicine procedure applied to a new “in situ” activimeter calibration methodology**

Lilian Toshie Kuahara , Instituto de Pesquisas Energéticas e Nucleares, Universidade de São Paulo., Eduardo Corrêa, Instituto de Pesquisas Energéticas e Nucleares, Universidade de São Paulo., Maria da Penha Albuquerque Potiens, Instituto de Pesquisas Energéticas e Nucleares, Universidade de São Paulo.

**Presenter:** Maria da Penha Albuquerque Potiens, mppalbu@ipen.br

A safe and efficient Nuclear Medicine Services (NMS) performance depends, among other factors, on a complete quality assurance program, mainly in the case of the activity meters. Many elements may influence this equipment response, being the major errors related to vials characteristics, such as volume and geometry, as presented in other studies [1,2]. Correction factors must be applied in order to avoid patient exposure to excessive doses. However, another aspect that should be taken into account is how much radioactive material is lost during the radioisotope labeling, a process that includes many recipient changes. In this study we present the estimated activity lost during  $^{99m}\text{Tc}$  labeling process and show how important is to add this value to the total activity measured in a new “in situ” calibration procedure, in which the activity meter is not removed from its place of use. For the radioactive residue determination  $^{99m}\text{Tc}$  labeling procedure was reproduced under laboratorial conditions, resulting in losses of up to 40 %. However greater errors are expected in a NMS. Activity meter calibration using two methodologies: the first consists in a direct comparison between the two systems with the same vial (P6-P6 and 10R-10R), and the second is a comparison made using two different vials (P6-10R), with and without geometry and residual activity corrections. A calibration factor of 0.999 was obtained in the reference situation. The same procedure performed without the application of the necessary correction factors resulted in a variation of almost 3 %, which is high considering the test was made under controlled conditions and less residue was left inside vials. The “in situ” calibration procedure worked well and was important to present the need of correction factors application, including the residue activity measurement.