Winter Webinar organized by the NACP Nuclear Medicine Committee

Traceability and uncertainty estimations for activity measurements with radionuclide calibrators

Date: 11 Dec 2025 | Time: 12:00 -13:00 CET | Online Event

Link to registration: Microsoft Virtual Events Powered by Teams

Paula Toroi

Katarina Sjögreen Gleisner

Paula Toroi is a principal advisor in the Radiation Metrology Laboratory of STUK and she is responsible for ionizing radiation metrology in Finland. Paula is the leader of work package on uncertainties in EURAMET 24RPT01 ETrain project which aims to improve traceability in nuclear medicine dosimetry.

Katarina Sjögreen Gleisner is professor in medical radiation physics at Lund university, who dedicated her research to dosimetry in nuclear medicine therapy. Lund university purchased its first secondary standard in 2013 (Fidelis). In the EURAMET 24RPT01 Etrain, Lund university is participating as a clinical partner and Katarina is also acting as work package leader.

Program

Nuclear medicine practices heavily rely on accurate measurements of activity. This is for delivery control of the purchased amount of activity, before (and after) injection to the patient, and for any dosimetry studies. However, reaching accuracy is not straight-forward, as the activity statement should then be metrologically traceable, i.e. both calibrated towards a metrological standard, and associated with an estimate of the uncertainty. In this presentation we will go through the technical steps, dwell upon the meaning of metrological traceability and how its implementation is being approached within the scope of a European project (ETrain).

1. Radionuclide calibrators for activity measurements, short principles of technique (Katarina)
    - Radionuclide calibrators, radionuclides, target uncertainties
2. Etrain scope (Katarina)
3. Traceability – what it means (Paula)
    - Traceability chain, challenges
    - How traceability can be achieved in activity measurement
4. Uncertainty estimations (Paula)
    - Typical uncertainty components at different steps
    - How to estimate your uncertainty
5. Finland: (Paula)
    - Legal demands for traceable activity measurements
    - Current work to support for its implementation in the clinic
6. Sweden: (Katarina)
    - Legal demands for traceable activity measurements
    - Current work to support for its implementation in the clinic
7. Tie back to Etrain, teaser for upcoming workshops (Katarina)
8. Open discussion (all)