

Development of a microscale dosimetry framework for radiopharmaceutical therapy

<https://www.sckcen.be/en/thesis-and-internship-topics>



Radiopharmaceutical therapy (RPT) delivers radiation directly to tumor cells, but current clinical practice still relies on fixed administered activities and whole-organ dosimetry. This overlooks heterogeneous radiopharmaceutical distribution within organs, which is particularly critical for dose-limiting tissues such as the kidneys, where localized high absorbed doses may cause toxicity even when average organ doses appear safe.

This PhD project advances precision medicine in prostate cancer by developing a clinical microscale dosimetry framework for PSMA-targeted RPT.

By combining mechanistic physiologically based pharmacokinetic (PBPK) modeling with high-resolution anatomical representations, preclinical biodistribution data, clinical PET/SPECT imaging, and Monte Carlo-based dose calculations, the project aims to enable more accurate dose-response assessment and individualized treatment planning.

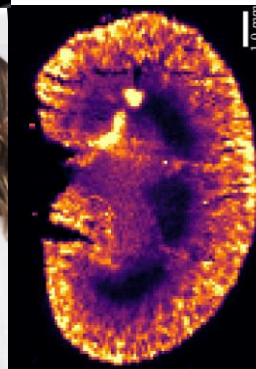
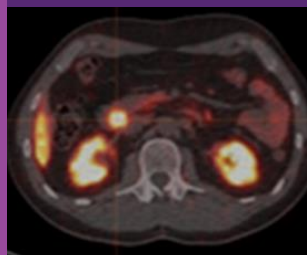
Embedded in a broader research initiative, this PhD offers the opportunity to work at the interface of physics, computational modeling, and clinical translation.

Main workplace: SCK CEN, Mol, Belgium

Required background:
medical physics | biomedical or nuclear sciences

Standard start date (earliest):
October 1st, 2026

✓ **scholarship available (4 years)**



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