

## Conception and validation of a dosimetric software for therapeutic use of $^{166}\text{Ho}$ nanospheres

*The "Centre of Research in Cancerology of Toulouse"- team 15 (CRCT: UMR 1037 INSERM/UPS) proposes a Post-Doctoral fellowship (4 years) for an industry-oriented research project. Recruitment is planned for 3 years (with possible extension to 4 years), starting in summer 2014.*

The context is that of the development of a new microbrachytherapy/radioembolization approach using microparticles of radioactive holmium ( $^{166}\text{Ho}$ ), for the treatment of liver cancer and glioblastoma.

Within the project, a clinical dosimetry software adapted to the therapy by radioactive microparticles will be developed in partnership with an industrial involved in the development of medical imaging workstations.

The applicant will participate to all phases of the project, from the conception to the clinical validation of the software, in collaboration with the industrial partner.

He/she will also be involved in the supervision of 2 PhD research students who will investigate some scientific aspects related to the global research/industrial project (multimodality imaging, treatment planning).

The research fellow will also participate to the clinical trials planned at the end of the project.

The research project will necessitate:

- Definition of a specific dosimetric approach applicable to the radiotherapy of cancers with  $^{166}\text{Ho}$  microparticles,
- Assessment of quantitative imaging approaches (SPECT/CT) for  $^{166}\text{Ho}$  microparticles,
- Impact of multimodality imaging,
- Definition & characterisation of each module composing the clinical software,
- Participation to the development and validation of each module,
- Operating and evaluating the software in clinical conditions.

The clear objective is to develop an industrial product.

Candidate profile:

- Medical Physics, with experience in medical imaging (Nuclear Medicine, CT, MRI)
- Radiopharmaceutical dosimetry (Monte-Carlo/convolution)
- Scientific programming (C++, ITK/VTK, MatLab, etc.)

A preliminary experience in therapeutic nuclear medicine is desirable.

The applicant will be in charge of all dosimetry-related aspects of the project.

He/She will be involved in the supervision of Master and PhD students, and work in collaboration with the industrial partner.

*Contact:*

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