

Welcome Seminar

6 Novembre 2025 - h15:00
Aula A

Dr. Clara M Goncalves de Faria

Ricercatore a tempo
determinato di tipo A

Dipartimento di Scienze Chimiche
Università degli studi di Padova

Exploring dose at the nanoscale: theragnostic approaches in radiotherapy with Laser Ablation in Liquid

Radiotherapy is one the main pillars of cancer treatment, with half of all oncological patients undergoing radiation sessions. Its efficacy lies on exploring the differences in radiation delivery and response between tumor and healthy adjacent tissues. This gap is called therapeutic window and expanding it is one of the main strategies to increase survival rates and quality of life for patients. In this context, nanotechnology emerges as a promising tool offering a wide range of solutions aimed to increase the therapeutic window, such as spatial dose modulators and novel routes to dose delivery.

During a short self-introduction, I will cover further radiobiology principles that will be useful for me to present, afterward, the state of art on *nano radiosensitizers* and the emerging field of *nanobrachytherapy*. In short, these strategies represent the use of nanoparticles to sensitize the tumor to radiation or increase the dose locally, and to act as internal radiation sources, respectively.

Within this framework, I will introduce the projects I'm currently working on at the LASP group with the support of an international collaborative network that includes HSR, in Milan, and IPEN, in Sao Paulo. Finally, I will discuss the main results we have had so far, along with our challenges and future perspectives.