
DESIGN AND OPTIMIZATION OF A PHANTOM FOR RADIOBIOLOGY STUDIES

THESIS PLAN PRESENTATION

TOMÁS ALMEIDA – FCUL, ENGINEERING PHYSICS

ADVISORS: BRÍGIDA FERREIRA & JORGE SAMPAIO

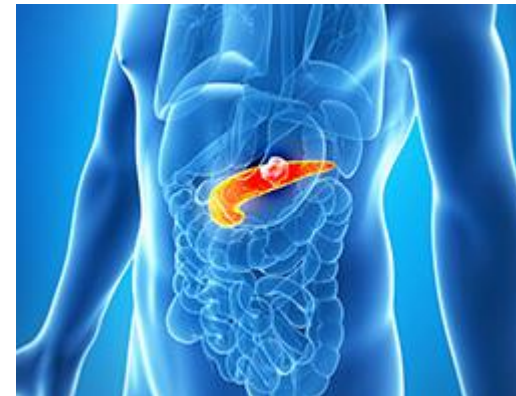


Ciências
ULisboa

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MOTIVATION

- Most tumours treated with radiotherapy are in-depth;
- Cancerous cell cultures are often irradiated for radiobiological studies to evaluate the efficiency of new treatment strategies;
- Cell lines are placed inside a phantom to simulate clinical settings;
- Currently available radiobiological phantoms are sub-optimal.



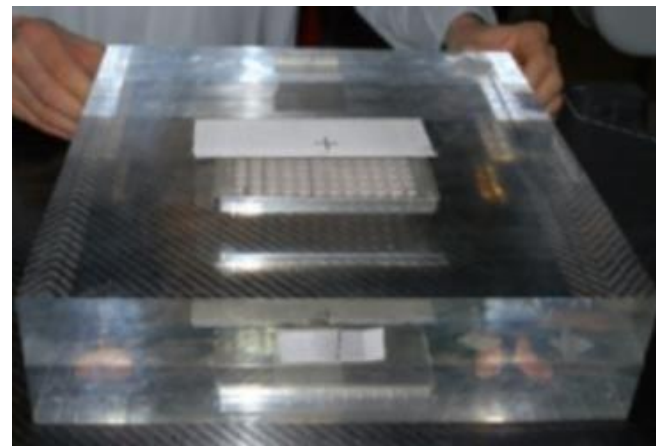
[1] Pancreatic cancer depiction

OBJECTIVE

- Design a phantom for Monte Carlo simulations and in-vitro radiobiological studies, that is:
 - Easy to assemble and fast to setup;
 - Able to simulate different clinical settings;
 - Allows for precise relative and absolute dosimetry using different detectors;
- Simulate different scenarios of irradiation within radiobiological experiments, with 
- Make a cost benefit assessment.

Probably wont have enough time... But would be very interesting to:

- Build and test the phantom. Compare experimental with simulated results (in particular for enhanced radiotherapy with NP's)



[2] *In vitro* irradiation system for radiobiological experiments