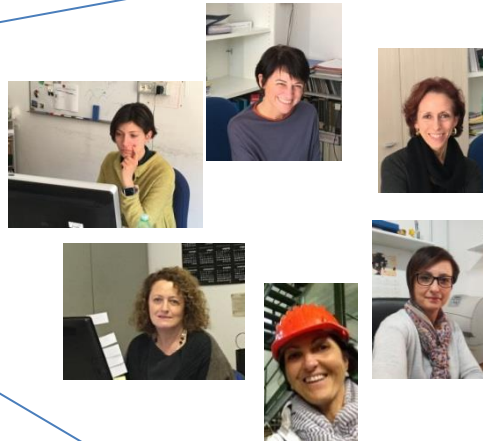


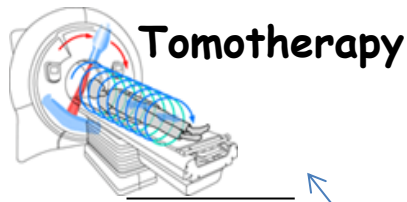
Servizio Grandi Strumentazioni e Core Facility

Dosimetria delle radiazioni ionizzanti



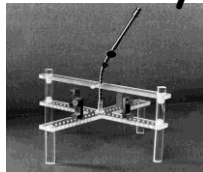
Emanuela Bortolin, Cinzia De Angelis, Sara Della Monaca, Paola Fattibene, Donatella Pietraforte, Maria Cristina Quattrini

Competenze in diversi ambiti

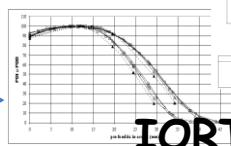
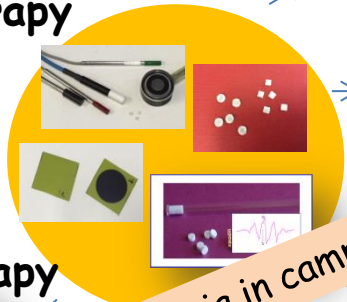
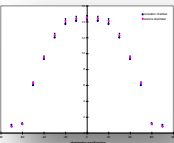


Tomotherapy

Brachytherapy

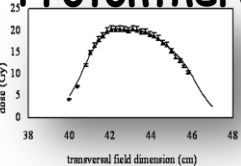


Arc-therapy



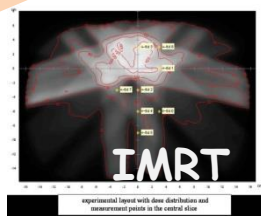
IORT

Protontherapy



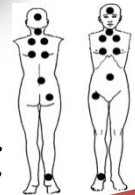
Dosimetria in campo medico

audit

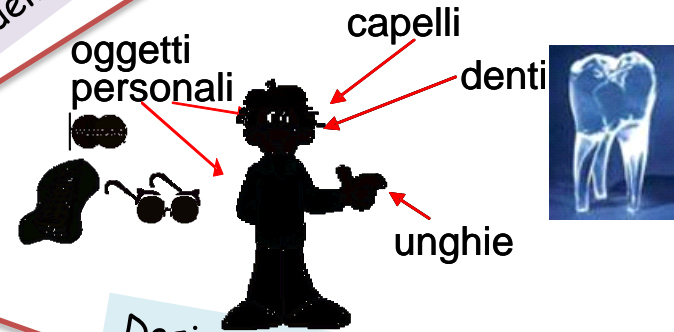
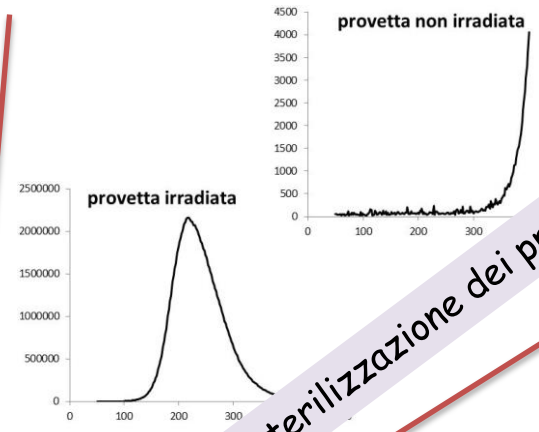


IMRT

TBI



Controllo della sterilizzazione dei prodotti sanitari



Dosimetria retrospettiva

Identificazione di alimenti irradiati



Thermoluminescence measurements to detect irradiated food - EN 1788

The process involves:

- Sample preparation: density separation using polytungstate to separate organic material and minerals.
- Mineral transfer: transfer of minerals to a heating planchet.
- Measurement: use of a TL reader to measure the glow curve.
- Normalization: normalization to 1 kGy.

Competenze disponibili per:

Servizio di irraggiamento **all'interno dell'Iss** (Centro TISP)

Gamma Rays **Cs-137** irradiator



Dose rate of **0.84 Gy/min** (15/2/11)

Attenuators – A set of 3 attenuators can reduce the central dose rate by approximately 33% (**0.56 Gy/min**), 60% (**0.34 Gy/min**) or 80% (**0.17 Gy/min**) respectively



All'esterno dell'Iss

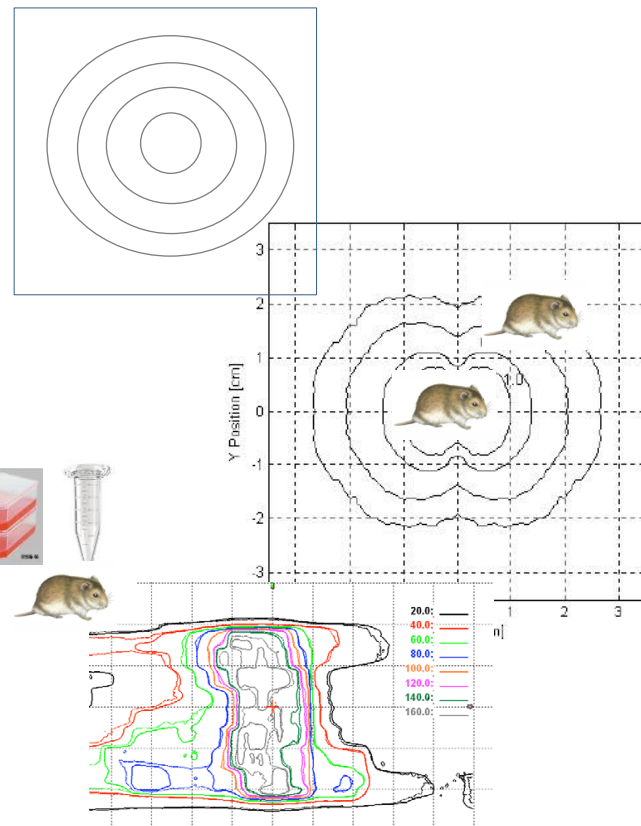


Parametri da analizzare per una corretta dosimetria

- Tipo di sorgente (radiazione X, γ , e, p...)
- Geometria della sorgente (puntiforme, estesa, ...)
- Distribuzione di dose
- Tipo di campione da irradiare
- Dimensioni campione
- Fantoccio/supporto per posizionamento campione
- Distanza dalla sorgente (diverso rateo di dose)

...

...



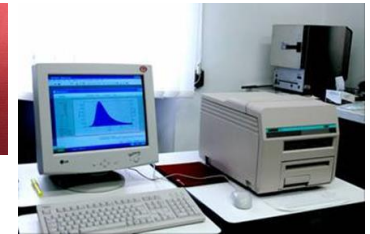
Strumentazione per dosimetria

Sistemi dosimetrici

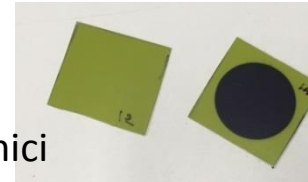


Camera a ionizzazione
Rivelatore al silicio
Rivelatori a diamante
Elettrometro Kithley 6517A

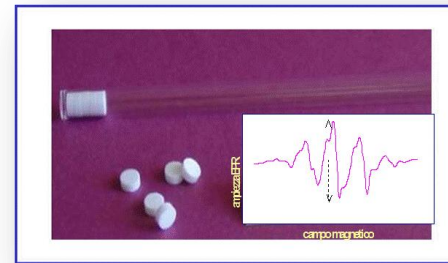
Dosimetria a
termoluminescenza



Film radiocromici



Sistema alanina/EPR



Fantocci

Rando Alderson phantom
Fantocci in PMMA
Fantocci ad acqua

