
BNCT possibility's and developments

Principle

BNCT is an acronym for *Boron Neutron Capture Therapy*. It is a treatment method radiating a patient with neutrons. These neutrons are absorbed by Boron stronger than by any other tissue without Boron. It is possible to introduce locally inside a patient an enhanced concentration of Boron by means of a suitable carrier. At this location the absorbed dose equivalent tempo is much larger than in the surrounding tissues. This would enable the possibility to radiate cancers located in sensitive tissues with sufficient dose without destroying the sensitive nearby tissues.

Advantageous

- Possibility for very local radiation therapy. With sufficient selective carrier, only in desired tissues.
- Patient is does not suffer from radioactive substances.
- Technique is still under development

Disadvantageous

- Need for neutrons (up to now only available at research reactors).
- Technique is still under development.

Developments

International several research groups are developing BNCT. These groups are organised into an international community, ISCNT¹⁾. This includes the group at NRG in Petten²⁾. There a set-up is realised at the high flux reactor. Further development is progressing to facilitate the production of neutrons by means of accelerators. If these developments are successful the set-up can be realised at hospitals or a mobile set-up can be realised. A big disadvantageous of the techniques is then overcome.

¹⁾ <http://www.jrc.nl/isnct/>

²⁾ http://www.nrg-nl.com/public/medical_nl/bnct/