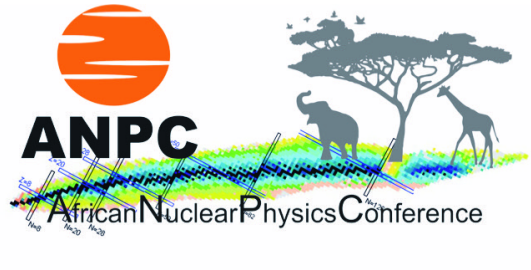

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Perspectives in Boron Neutron Capture Therapy of Cancer B

Boron Neutron Capture Therapy (BNCT) is the only form of radiotherapy based on the induction of nuclear reactions selectively in the tumor cells. For these features BNCT has been used as an experimental therapy for disseminated tumors or for cancers for which there is no other effective treatment. Modern BNCT is facing a new era due to the most recent clinical results for the Glioblastoma and Head and Neck cancers [1-3], performed at research reactors, and the substantial change expected from the ongoing projects towards accelerator based neutron sources (ABNS) for this therapy, that can be built in hospitals [4].
In this talk the status of this therapy, the ongoing projects and some research lines towards the improvement of the therapy will be discussed. In addition to the search of more selective compounds in the nanoscale and the development of better neutron sources, there are different problems where active research is being carried. In the field of nuclear physics, an important problem of interest is the dosimetry and treatment planning which is based on Monte Carlo simulations. Reducing the uncertainties of the dose determination both in tumor and in healthy tissue is a key problem for improving the therapeutic outcome. For this purpose, work is being done towards the advances in the knowledge on relevant nuclear [5] and radiobiological data [6] for this application. This work requires experimentation that has to be done at nuclear research facilities by means of interdisciplinary research teams. These will be also described in this talk.

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