

Heavy-Ion Therapy at GSI: Progress Report

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Clinical Trials

In 2000 three Carbon beam blocks were used to treat 32 patients suffering from skull base tumors such as chordomas, chondrosarcomas, adenoid cystic carcinomas and other less frequent indications. Partially these ongoing clinical trials have reached phase II level. In total 73 patients have been treated within this experimental programme and the overwhelming part of treatments had a curative intention [1,2]. The very promising local control rate as well as the low treatment related toxicity rate kick off new clinical goals like a dose escalation or the treatment of extracranial locations. In preparation of treatments in the pelvic region a dedicated immobilization device was tested at GSI (see figure 1) and the mandatory approval is under way.



Figure 1: Patient in a rigid immobilization device adapted for the patient couch of GSI's medical cave.

Physical-technical Aspects

In the third year of routine operation $\approx 20\%$ of the SIS-beamtime were used to operate the medical cave for 13 weeks in a time-sharing mode with physics experiments. The performance of

the GSI accelerators reached an excellent level of more than 95% beam availability.

The limited angle positron camera BASTEI [3] installed at our treatment facility was upgraded to be rotatable (see figure 2). This feature will allow the use of the PET-method in combination with the patient chair which presently is under commissioning and should be operational by the end of 2001 [4]. This additional functionality will extend the variety of entrance channels thus offering the possibility of treating more patients and further reduce the unavoidable dose to the organs at risk.



Figure 2: The nozzle of the treatment facility with the rotatable head of the PET camera.

References

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- [2] D. Schulz-Ertner et al., this report
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