

Seminar "Selected Topics in Physics": Prof. Katharina Franke
From basic solid state research to applications
Talk by Katharina Burchard

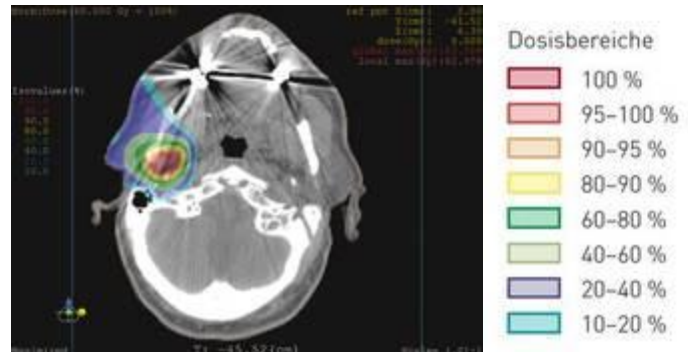
Proton Therapy

or

How to use a cyclotron particle accelerator to fight cancer

When in the 1930's the first cyclotrons were built, which could accelerate particles to velocities near the speed of light, no one thought those machines would one day be of inestimable value in the fight against cancer. It has been a long way from the first palm-sized cyclotron in 1930 to their mass production for large proton therapy centers all over the world. But the journey proved to be worthwhile.

The talk aims to give an understanding of tumor treatment with proton beams from the physical and medical point of view. A brief look at the history of cyclotrons and their principle of operation will lead to the introduction of relevant properties of protons and their interaction with human tissue. The two existing methods for proton therapy (scattering and spot scanning) will be presented and finally compared to the conventional x-ray therapy.



Pictures from the Rinecker Proton Therapy Center website, <http://www.rptc.de/en/proton-therapy.html>
(Access: 15.05.2013)