Accelerator Aspects of the Cancer Therapy Project at the GSI Darmstadt, H. EICKHOFF, GSI Darmstadt - The requirements of the GSI Therapy project for the accelerator operation largely extend conventional synchrotron operation. For almost arbitrary pulse to pulse variations of extraction energy, beam intensity and final focus an extreme accuracy and reproducibility of beam parameters are demanded. In addition safety aspects play a dominant role for patient treatment. These requirements demand extensive modifications of the accelerator control components and extensions of the control and operating software. Both a presentation of the necessary accelerator modifications and the status of experimental results will be given.