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SURVEY AND ALIGNMENT OF THE ACCELERATOR AT THE NATIONAL CENTER FOR ONCOLOGICAL HADRON THERAPY

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The Centro Nazionale Adroterapia Oncologica (CNAO) is the first medical accelerator facility for hadrontherapy with C6+ and protons in Italy. Two ECR ion sources produce a beam injected into a LINAC and accelerated at 7 MeV. A 78m circumference synchrotron stores and accelerates the beam up to 400 MeV/u. Each one of the three treatment rooms receives the beam extracted by the synchrotron; the central one has two beam parts, one horizontal and one vertical; the lateral rooms have an horizontal beam part. The beam path from sources to patient is rather long and many components contribute to the beam formation and characteristic. All these components need to be accurately aligned in a definite position in order to accomplish their task. This paper shows the alignment method, survey instruments and software used for both diagnostic devices and magnets.

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