

## Survey and alignment design of HITFiL

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**Abstract:** The biggest challenge of survey and alignment of HITFiL Heavy ion Therapy Facility in Lanzhou is the tight positioning requirement and the big scale vertical beam installation. The laser trackers with their software –Spatial analyzer was used in the Survey and alignment of HITFiL, and the key survey steps are control network fiducialization and installation. Particularly, error budget should be within 0.06mm for control network fiducialization is 0.05mm, and installation is 0.08mm, which is a little smaller than the overall requirement of 0.10 mm. Besides the target of error control, reliability, efficiency, cost are factors considered in the design.

**Key words:** SpatialAnalyzer laser tracker; Survey and alignment of accelerator; Control network

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