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The operation status of CSNS front end

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The front end means the front part of linac that includes IS, LEBT, RFQ and MEBT. As the start point of CSNS, the condition of front end is one of key factors which influence the stable operation of CSNS. Based on the beam requirement of CSNS phase I, the front end should provide a stable H- beam with energy of 3.0MeV, a maximum pulsed peak current up to 15mA, a beam duty factor 1.0% at a repetition of 25Hz and beam pulse width of 400us before chopping. The installation of CSNS front end was completed in 2015. Although the front end satisfies the beam requirement of CSNS phase I, the stability of the front end is not satisfactory during beam commissioning. The instability mainly comes from the ion source and RFQ sparking. After last 3 years commissioning and improvements, now the stability of CSNS front end was improved a lot. The beam availability of beam from the front end reaches 99.5% in the last year.

Primary author: Mr LIU, Shengijn (IHEP)

Presenter: Mr LIU, Shengijn (IHEP)

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