

## Operation status of the J-PARC negative hydrogen ion source

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A cesium-free negative hydrogen ion source driven with a LaB<sub>6</sub> filament is being operated for J-PARC [1]. The beam commissioning of J-PARC accelerators started in November 2006. As of June 2010, there have been 34 beam commissioning or supply runs. In these runs, the ion source has been successfully operated in two different modes such as low current mode of 5 mA and high current mode of 30 mA. According to the task of the run, one of the two modes was selected. However, the beam current has been restricted to less than 15 mA for the stable operation of the RFQ linac which has serious discharge problem from September 2008 [2]. The beam run is performed during 4-5 weeks cycles, which consisted of a 3-4 weeks beam run and 4 days down-period interval. At the recent beam run, approximately 700 hours continuous operation was achieved, which is satisfied with the requirement of the ion source lifetime for the J-PARC first stage. At every runs, the beam interruption time due to the ion source failure is a few hours, which correspond to the ion source availability of 99 %.

[1] H. Oguri, A. Ueno, K. Ikegami, Y. Namekawa, and K. Ohkoshi, Phys. Rev. ST Accel. Beams 12, 010401 (2009).

[2] H. Oguri, A. Ueno, K. Ikegami, Y. Namekawa, and K. Ohkoshi, Rev. Sci. Instrum. 81, 02A715 (2010).