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## Emittance Measurement of J-PARC RF Ion Source after 5-Month Continuous Operation

In the J-PARC user operation from Nov. 2020 –Apr. 2021, continuous operation up to 3,651 hours of J-PARC RF (Radio Frequency) negative hydrogen ion (H<sup>-</sup>) source has been achieved. The ion source was operated with the output H<sup>-</sup> current of 60 mA. After the operation, phase space diagrams at the end of LEBT (Low Energy Beam Transport), which corresponds to RFQ (Radio Frequency Quadrupole) entrance, were measured with an emittance monitor at the test stand under same operation condition as in the J-PARC linac. Comparison of the phase space diagrams between the present ion source and the previous one which experienced continuous operation for 2,445 hours shows small difference in the beam emittance. This result indicates that the long-run operation for 3,651 hours does not affect the beam emittance at RFQ entrance. In the presentation, target phase-space characteristics and initial results are reported.

### E-mail for contact person

takanori.shibata@kek.jp

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**Primary authors:** SHIBATA, Takanori (J-PARC/KEK); SHINTO, Katsuhiko (J-PARC/JAEA); Mr OHKOSHI, Kiyonori (J-PARC/JAEA); Mr NANMO, Kesao (J-PARC/KEK); IKEGAMI, Kiyoshi (J-PARC/KEK); Dr OGURI, Hidetomo (J-PARC/JAEA)

**Presenter:** SHIBATA, Takanori (J-PARC/KEK)

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