

J-PARC Linac and RCS operational status and upgrade plan to 2 MW

The 3-GeV rapid cycling synchrotron at the Japan Proton Accelerator Research Complex was designed to provide 1-MW proton beams to the following facilities. Thanks to the improvement works of the accelerator system, we successfully accelerate 1-MW beam with quite small beam loss. Currently, the beam power of RCS is limited by the lack of anode current in the RF cavity system rather than the beam loss. Recently we developed a new acceleration cavity that can accelerate a beam with less anode current. This new cavity enables us not only to reduce requirement of the anode power supply but also to accelerate more than 1-MW beam. We have started to consider the way to achieve beyond 1-MW beam acceleration. So far, it is expected that up to 1.5-MW beam can be accelerated after replacement of the RF cavity. We have also continued study to achieve more than 2 MW beam in J-PARC RCS.

Primary author: YAMAMOTO, Kazami (Japan Atomic Energy Agency)

Presenter: YAMAMOTO, Kazami (Japan Atomic Energy Agency)

Session Classification: Accelerator