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## **Development of low-dose proton irradiation test bench using beam window**

*Thursday, 11 May 2023 16:30 (2 hours)*

The J-PARC main ring is being upgraded to a beam intensity of 1.3 MW. The capacity of the beam dump used for beam tuning is planned to be increased from 7.5 kW to 30 kW. The current beam dump has a vacuum that extends from the accelerator tunnel to 4.5 m inside the wall, keeping the radiation back scattered from the dump at a sufficiently low level. The new beam dump design requires to have a beam window to break the vacuum in the accelerator tunnel. The beam window is a new beam loss spot and radiation from it needs to be shielded, but we would rather consider actively using it as a low-dose neutron and meson source. In the J-PARC main ring, a test bench has already been set up downstream of the beam collimator for irradiation tests in a high-dose composite particle environment, but access to the test bench requires opening and closing the steel shielding wall each time, and the residual radiation dose is high. By preparing a test bench that can be used for tests that do not necessarily require high doses, it will be possible to perform various irradiation tests more easily. The neutron and meson distributions obtained from the beam window are predicted and the availability of irradiation test bench is outlined in this report.

### **Funding Agency**

### **Footnotes**

### **I have read and accept the Privacy Policy Statement**

Yes

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