

2023 RaDIATE Collaboration Meeting



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RaDIATE activities at J-PARC

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J-PARC (Japan Proton Accelerator Research Complex) consists of a series of world-class proton accelerators and the experimental facilities that make use of the high-intensity proton beams. Recently, higher intense proton beams are requested due to requirement of further physics research. However, irradiation damage and thermal shock in the target, beam window, and other beam-intercepting components limit the beam intensity and the operation time in future facility. Research of material resistance to irradiation damage and thermal shock is an important issue common to all advanced accelerator facilities in the world. J-PARC officially participated in the international cross-disciplinary collaboration, RaDIATE, Radiation Damage In Accelerator Target Environments, in December 2017. So far, J-PARC has conducted the research mainly under collaboration with Fermi National Accelerator Laboratory by performing high-energy proton irradiation at Brookhaven National Laboratory, Post Irradiation Examination at Pacific Northwest National Laboratory, and thermal shock experiments at CERN-HiRadMat. Furthermore, consisting of experimental facilities such as Neutrino Experimental Facility, Hadron Experimental Facility, and Materials and Life Science Experimental Facility, accelerator facilities such as Linac, Rapid Cycle Synchrotron, and Main Ring, including Cryogenic Section, and Radiation Control Section, the entire J-PARC began to move as a project organized by the Director of J-PARC Center in April 2023. These activities also play an important role in the construction of the J-PARC proton beam irradiation facility. In this presentation, recent RaDIATE activities at J-PARC will be reported.

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