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Achievement and future upgrade of J-PARC accelerator (15' + 5')

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The J-PARC accelerator comprises an H- linac, a 3-GeV Rapid-Cycling Synchrotron (RCS), a 30-GeV slow cycling Main Ring synchrotron (MR). The MR has two beam extraction systems; a fast extraction for beam delivery to the neutrino beam line of the Tokai-to-Kamioka (T2K) experiment, and a slow extraction for beam delivery to particle and nuclear physics experiments in the hadron experimental hall. The MR delivered 400 kW beam in maximum to the T2K experiment and 43 kW beam to the hadron experimental hall. For near future plan, high repetition rate scheme will be adopted to achieve beam power higher than the design specification 750 kW. The cycle time of the FX will be decreased from the present 2.48 s to 1.3 s by replacing all of main magnet power supplies. The budget of the power supplies have been approved by Japanese government in JFY2016. In this paper, the most recent status of the J-PARC accelerator and details of the future upgrade plan will be presented.

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