



Contribution ID: 21

Type: **Talk**

## Neutronic optimization for new neutron source in J-PARC

*Monday, 2 September 2019 12:10 (20 minutes)*

In J-PARC, 3 GeV and 1MW proton beam induces a carbon target and a mercury target to provide muon beam and neutron beam, respectively. The facility, called the first target station, “TS1”, starts to operate from 2008 and operates with 500kW stably as of June 2019. As a future plan, the second target station, “TS2”, is being planned. TS2 has a tungsten rotating target to provide both neutron and muon, and higher neutron brightness are expected by adopting higher density of proton beam, closer moderators to the target, flatter moderator and so on. The rotating target cooled by helium gas is also expected to increase neutron and muon intensities with a coexistence of them. In order to provide high intensity neutrons, optimization studies of TS2 were performed. As a result, it preliminary indicates that the neutron brightness is increased 10 times higher than that of TS1.

### Poster back-up

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**Session Classification:** Talks

**Track Classification:** Neutron Production