Complementary use of RAON DC muons and J-PARC pulsed muons from the viewpoint of muon science at J-PARC

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Abstract

A very intense DC muon source will be soon constructed at RAON with use of 600 MeV, 660 μA proton beam. On the other hand, a very intense pulsed muon facility MUSE has been operating at J-PARC. The RAON muon facility at Daejeon and J-PARC MUSE at Tokai are located at a distance of 1180 km. Scientists in Korea and Japan will be able to enjoy not only DC muon source but also pulsed muon source, which have unique and complimentary features. Table I shows a summary of pros and cons for DC muon source and pulsed muon source from the viewpoint of a pulsed muon source.

Table I. Pros and cons for DC muon source and pulsed muon source.

	DC Muon@RAON	Pulsed Muon@J-PARC
Time resolution	**< 1 ns**	**×; ～100 ns**
Number of Detectors, Cost	**○ economic**	**×:should be segmented**
Event by event measurement	○	×
Long range slow relaxation		○
Beam Intensity available	△	○
Synchroization with other pertubation	△	○
Time Gate against DC BG.	△	○

In the symposium, the latest status of J-PARC MUSE and some of the planned experiments with use of pulsed muons will be introduced.