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MuSIC: A new DC muon beamline at RCNP

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A new DC muon source is under construction at Research Center of Nuclear Physics (RCNP), Osaka University. The ring cyclotron of RCNP can provide 400W 400MeV proton beam. Using this proton beam, the MuSIC produces a high intense muon beam. The target muon intensity in 10^8 muons/second, which is achieved by a pion capture with great efficiency to collect pions and muons using a solenoidal magnetic field. A pion production target system is located in a 5 Tesla solenoidal magnetic field generated by a super-conducting solenoid magnet. The proton beam hits the target, and backward pions and muons are captured by the field. Then they are transported by a curved solenoid beam line to experimental apparatus. The construction has been started at 2010, and would be finished in 5 years. We plan to carry out not only an experiment to search the lepton flavor violating process but also other experiments for muon science and their applications using the intense muon beam.

Primary author: Dr SATO, Akira (Osaka University)

Presenter: Dr SATO, Akira (Osaka University)

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