Construction of the Super Omega Muon Beamline at J-PARC

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The Materials and Life Science facility (MLF) at J-PARC is currently constructing four different muon beamlines from a common production target. One of the beamlines is the Super Omega muon beamline which can provide both positive and negative muons for a variety of experiments. This beamline will have a solid angle acceptance of 400 mSr which can capture positive surface-emitted muons at a rate of 5×10^8 Hz, and negative cloud muons at a rate of 2×10^7 Hz. While the positive muons will be used to produce ultra-slow muons for use in studies involving surface phenomenon, the negative muons can be used for purposes of studying muon catalyzed fusion.
The beamline will consist of a set of normal conducting capture-solenoids, superconducting curved transport-solenoids, and the axial-focusing magnet. Currently, the capture- and transport-solenoids are being designed, with the former design at its final stages. The compatibility of the axial-focusing magnet with the transport solenoids is being evaluated concurrently. In this constribution, we report the present status of the design and construction of the Super Omega muon beamline at the MLF.