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A simulation study of muon transport in the Ultra-Slow Muon beamline at J-PARC

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The Super-Omega beamline at J-PARC Materials and Life Science Experimental Facility provides an intense pulsed surface muon beam. Combined with a muonium production target and a laser for muonium ionization, the pulsed ultra-slow muon facility has been developed. At the facility, a spectrometer for the muon spin rotation measurements using the ultra-slow muons is under commissioning. In this poster presentation, we will report on the beam optics optimization of surface muon transport and ultra-slow muon extraction to improve the intensity and quality of the ultra-slow muon beam.

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