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【320】The PIONEER precision pion decay experiment

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PIONEER is a newly approved, next-generation precision pion decay experiment at PSI testing lepton flavour universality. Phase I aims at measuring the charged-pion branching ratio to electrons vs. muons 15 times more precisely than the current experimental result, reaching the precision of the Standard Model (SM) prediction at 1 part in 10000. Considering several inconsistencies between the SM predictions and data pointing towards the potential violation of lepton flavour universality, the PIONEER experiment will probe beyond-SM explanations of these anomalies through sensitivity to quantum effects of new particles up to the PeV mass scale. This talk will introduce the conceptual experiment design and describe the physics motivation of Phase I.

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