

PAUL SCHERRER INSTITUT



Particle Theory Seminar

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“Low-energy constraints on muon and tau neutral current
parity-violating processes”

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Abstract:

The neutral current type couplings of tau and muon to Z-bosons are well-studied at the Z-peak, but so far have been completely inaccessible at low energies. I will discuss how the new forces mediated by low-mass very weakly coupled vector bosons - inaccessible at high-energies - can lead to the amplification of the parity-violating NC signatures for muons and taus at low energy. I will review the current constraints on such parity-violating forces, as well as the new ideas for their detection (polarized muon scattering, new experiments with muonic atoms, and muon-pair production by polarized electron collisions with nuclei).