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Tests of Low-Scale Leptogenesis in Charged Lepton Flavour Violation Experiments

We consider low-energy tests of low-scale leptogenesis based on the type I seesaw scenario with three right-handed
singlet neutrinos ν_{lR}. In this scenario, successful leptogenesis is possible for quasi-degenerate in mass heavy Majorana neutrinos $N_{1,2,3}$,
$M_{1,2,3} \cong M$, $|M_j - M_i| \ll M$, $i \neq j = 1, 2, 3$,
heavy Majorana neutrino masses $M \sim (0.05 - 7 \times 10^4)$ GeV, and N_j charged current and neutral current
weak interaction couplings as large as $\mathcal{O}(10^{-2})$.
We derive the constraints on the corresponding
leptogenesis parameter space from the existing data
from low-energy experiments, including the limits from
the experiments on $\mu \to e\gamma$ decay and
on the rate of $\mu - e$ conversion in gold.
We show also that the planned and upcoming experiments on
charged lepton flavour violation with $\mu^{\pm}$,
MEG II on the $\mu \to e\gamma$ decay,
Mu3e on $\mu \to eee$ decay,
Mu2e and COMET on $\mu - e$ conversion in aluminium
and PRISM/PRIME on $\mu - e$ conversion in titanium,
can probe significant region of the
viable leptogenesis parameter space, and thus
have a potential for a discovery.

Participation

I plan to attend in person

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