Contribution ID: **15** Type: **Working Group Sessions**

Charged-lepton decays from soft flavour violation in a two-Higgs doublet seesaw model

Wednesday, 21 June 2017 18:00 (30 minutes)

Extensions of the Standard Model with right-handed neutrinos ν_R
in the framework of the seesaw mechanism are popular to explain the smallness of the neutrino masses.
In our model, we add a second Higgs double and in order to avoid
lepton flavour-changing neutral-scalar interactions at tree level, we allow lepton flavour violation solely in the non-flavour-diagonal Majorana mass matrix of the right-handed neutrinos whereas all Yukawa-coupling matrices are lepton flavour-diagonal.
We show explicitly in that framework that the branching ratios of the charged-lepton decays
$\ell_1^- \to \ell_2^- \ell_3^+ \ell_3^-$
can be close to their experimental upper bounds,
while the branching ratios of other lepton flavour-changing decays, like $\ell_1 \to \ell_2 \gamma$,
are invisible because they are suppressed by m_R^{-4},
where m_R is the seesaw scale.
Furthermore, considering the anomalous magnetic moment of the muon, in our model the contributions from the extra scalars
can remove the discrepancy between its experimental and theoretical values.

Primary authors: Ms AEIKENS, Elke (University Vienna); Prof. LAVOURA, Luis (CFTP, Instituto Superior Tecnico, Universidade de Lisboa); Prof. GRIMUS, Walter (University of Vienna)

Presenter: Ms AEIKENS, Elke (University Vienna)

Session Classification: Working Group: Electroweak Interactions

Track Classification: Electroweak Interactions Working Group