



LABORATORY FOR ELEMENTARY-PARTICLE
PHYSICS (LEPP)

Theory Seminar

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**Electroweak Baryogenesis,
Higgs rates and EDMs with
dim-6 complex Yukawas**



Complex dimension-six Yukawa couplings of the Higgs boson to quarks and leptons have interesting implications for collider rates of Higgs production and decay, EDMs and CP violation for electroweak baryogenesis. We explore if there are viable regions fulfilling all of these three complementary constraints, considering real and imaginary dimension-six terms of the tau, muon, top and bottom, each flavor separately and combinations thereof that allow for cancellations in the EDM and an enhancement of the baryogenesis.

We find that a complex tau Yukawa can account for the observed baryon asymmetry. Furthermore we highlight that a complex muon Yukawa large enough to account for the observed baryon asymmetry of the universe is allowed by the current bound on the electron EDM, but clearly ruled out by the recent upper bound on the Higgs decay rate to a pair of muons.

(This is work in collaboration with Marta Losada, Yossi Nir and Yehonatan Viernik.)

Wednesday, February 19, 2020
2:00pm
401 Physical Sciences Building