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Particle Physics

« Twice the Higgs, Twice the Fun »

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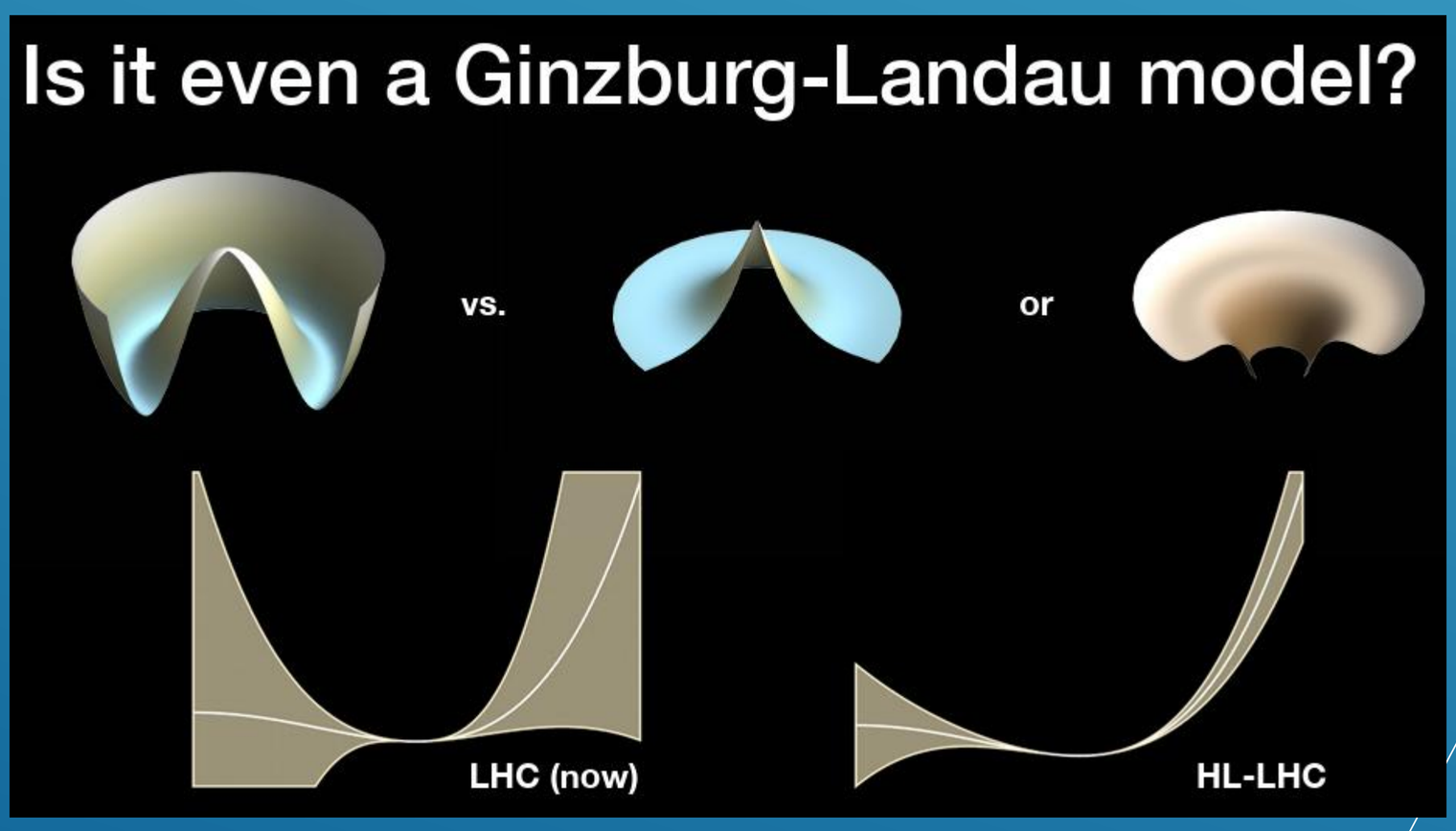
In the Standard Model, the ground state of the Higgs field is not found at zero but instead corresponds to one of the degenerate solutions minimising the Higgs potential. In turn, this spontaneous electroweak symmetry breaking provides a mechanism for the mass generation of nearly all fundamental particles. The Standard Model makes a definite prediction for the Higgs self-coupling and thereby the shape of the Higgs potential. Experimentally, both can be probed through the production of Higgs boson pairs (HH), a rare process that presently receives a lot of attention at the LHC. In this talk, the latest non resonant HH searches, as well as their statistical combination, are reported, with emphasis on the results obtained with the full LHC Run 2 dataset at 13 TeV. Results are interpreted both in terms of sensitivity to the Standard Model and as limits on the Higgs self-coupling and Wilson coefficients in Effective Field Theories.



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Amphi Dirac, 11 am