Contribution ID: **18** Type: **not specified**

Global interpretation of LHC indications within the Georgi-Machacek Higgs model

Wednesday 25 May 2022 14:00 (30 minutes)

The SM Higgs discovery has relied on the following ingredients:

- An "effective theory", the SM, which predicted the mass and the couplings of the Higgs particle
- A > 5 s.d. evidence of signals coincidentally observed by ATLAS and CMS for this particle (FNAL started with a ˜3 s.d. indication)

The dominant phenomenological framework remains MSSM but, in absence of evidence for SUSY, one needs to allow for alternates

In a bottom up approach I will show that while not yet reaching 5 s.d. –although not so far from it –there are various indications close by, which do not seem to match MSSM but can be accommodated with an extension proposed in 1985 by Georgi and Machacek

Some of these indications are not "far fetched"and belong to the gold plated channels of LHC

Not to be forgotten: (g-2)μ suggests that BSM physics is made out of light particles and could be within reach

Accordingly I will restrict myself to Pseudo Nambu-Goldstone bosons which in large class of models are the lightest objects in similitude with the pions of QCD, the SM h being one of them

Author: RICHARD, Francois

Presenter: RICHARD, Francois

Session Classification: Session 3