



Contribution ID: 6

Type: not specified

## Probing Flavon-Higgs mixing effects at future colliders

*Friday, August 7, 2015 4:00 PM (30 minutes)*

Current measurements of the Higgs properties at LHC seem consistent with the Standard Model. The couplings with fermions and gauge bosons, when taken as function of the particle mass, should lay on a single line. However, in models with extended Higgs sector the diagonal Higgs couplings to fermions, could lay on different lines, while non-diagonal flavor-violating Higgs couplings could appear too. We describe these possibilities within the context of multi-Higgs doublet models that employ the Froggatt-Nielsen mechanism to generate the Yukawa hierarchies. Furthermore, one of the doublets can be chosen to be of the inert type, which provides a viable dark matter candidate. The mixing of the Higgs doublets with the Flavon field, can provide plenty of interesting signals, including:

- i) small corrections to the couplings of the SM-like Higgs,
- ii) exotic signals from the flavon fields,
- iii) new signatures from the heavy Higgs bosons.

These aspects are studied within a specific model with 3+1 Higgs doublets and a singlet FN field. Constraints on the model are derived from the Higgs search at LHC, and their implications for the LFV Higgs decay  $H_i \rightarrow \tau \mu$  and the FCNC top decay  $t \rightarrow ch$ , are presented too.

### Oral or Poster Presentation

Oral

**Primary author:** Prof. DIAZ-CRUZ, Lorenzo (FCFM BUAP (Mexico))

**Presenter:** Prof. DIAZ-CRUZ, Lorenzo (FCFM BUAP (Mexico))

**Session Classification:** EWK and Higgs Sector

**Track Classification:** Electroweak and Higgs Theory