

Theoretical approach to the Flavor sector of the Standard Model after the Higgs discovery

Research Project / Research Group Description:

The origin of the change of Flavor in the Standard Model (SM) lies in the couplings of the fermions to the Higgs boson. After the Higgs discovery one can advance in our knowledge of the flavor sector both in the energy and in the intensity frontiers. The purpose of the project will be to study the phenomenology of models rich in flavor phenomenology in a combined approach: direct production and virtual effects. Examples of models suitable to explaining the leading actual emerging anomalies are: multi Higgs models and models with extra fermions. Still the flavor sector of multi Higgs models offers extremely interesting theoretical possibilities. Theoretical and phenomenological work related to the violation of discrete symmetries, like CP and T, is also foreseen.

The project includes a long standing collaboration of Francisco J. Botella with the Lisbon group at "Centro de Física Teórica de Partículas", in particular with Professors Gustavo C. Branco, Margarida Rebelo and Joao Silva world experts on CP violation and Flavor Physics, also with Dr. Miguel Nebot. The group leader collaborates closely with the LHCb IFIC group. We have common research grants.

Job position description:

The candidate will develop his theoretical research activity under the supervision of the leader group and she/he will be integrated in the Valencia-Lisbon flavor collaboration, under the umbrella of the international doctorate network IDPASC. Also the close connection with the experimental LHCb group at Valencia will be an opportunity for further developments related to the flavor structure of the SM.

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Research project/Research Group website

<https://www.uv.es/uvweb/servicio-investigacion/es/grupos-investigacion/grupo-1285949714098.html?p2=GIUV2014-183>



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