

# High Energy Theory group (UGR)

Members of the *área* Física Teórica in the Department of Física Teórica y del Cosmos at the University of Granada.

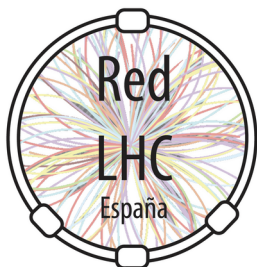
- Senior (16): J.A. Aguilar-Saavedra, J.L. Albacete, M. Bastero, A. Bueno, F. Cornet, A. Djouadi, E. Gámiz, I. Grau, J.I. Illana, B. Janssen, M. Masip, S. Navas, M. Pérez-Victoria, R. Pittau, J. Santiago, R. Vega-Morales.
- Junior (6): J. de Blas, A. Carmona, M. Chala, D. García, J. Olmedo, B. Zamorano.
- Ph.D. (10): G. Guedes, M. Guitérrez, A. Jiménez, D. López, A. Manso, A. Muñoz, F.J. Nicolás, P. Olgoso, M. Ramos, J.M. Pérez.



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- Wide range of interests: lattice, low-energy hadron physics, flavor physics, colliders, model-building & BSM, EFTs, formal aspects of QFT, astroparticles, gravity, cosmology.
- Active members of LHC WGs (Higgs, EFT, top, ...).
- Also participation in experimental collaborations: ATLAS, P. Auger, DUNE, KM3NeT, LISA, SBND.



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Ongoing and future projects:

- Model building for the LHC and beyond: Composite Higgs, Little Higgs, GUTs, Extra Dimensions:
  - Detailed studies of realistic models, non-standard signatures, interplay with other experiments (flavor, EWPD, cosmology,...).
- EFT for LHC and beyond:
  - Bottom-up: global fits, combinations, RGEs, new relevant EFTs.
  - Top-down: Automated matching, model classification.
- Searches for new particles at the LHC and beyond:
  - New-physics explanations of anomalies in experimental data.
  - New searches/signatures in simplified models.



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Ongoing and future projects:

- High precision tools for collider and flavor physics:
  - New efficient methods for multi-loop calculations.
  - Non-perturbative input for collider and flavor phenomenology with lattice gauge theories techniques.
- Dark Matter:
  - EFTs for DM and collider complementarity.
  - New DM candidates, new production mechanisms, DM/GW complementarity, connection to cosmology/inflation.
- Other issues further from the LHC ...

