

Astroparticles and Cosmology: Inflation, dark matter and neutrinos

Research Project / Research Group Description:

The research project will explore different alternatives to generate the necessary inflation in the early universe.

- Right-handed neutrinos or supersymmetric particles may play an important role in the inflationary era.
- After inflation, the generation of the baryon asymmetry may also be due to leptogenesis through the decays of right-handed neutrinos with or without supersymmetry.
- Dark matter is the other necessary ingredient in standard cosmology and it may also be closely linked with supersymmetry. Collider experiments may confirm the lightest supersymmetric particle is responsible for the dark matter of the universe if this particles is found at LHC.

Our group forms part of the IFIC, University of Valencia-CSIC (<http://ific.uv.es>) and of the Department of Theoretical Physics of the University of Valencia (<http://www.uv.es/fisteo>). The senior staff of the group consists of Gabriela Barenboim, Jose Bernabeu, Jose Bordes, Vicent Gimenez, Sergio Palomares, Jose Peñarrocha, Armando Perez, Miguel Angel Sanchis, Arcadi Santamaria, Jordi Vidal and Oscar Vives. We have more than 30 collaborators from foreing institutions which participate actively in the projects.

Job position description:

- The candidate will develop his research under the supervision of one of the senior members of the group and, possibly, one of the foreign senior scientists, and in collaboration with other local researchers, postdocs and students .
- She/he should have a good basis in quantum field theory, relativity and elementary particles.

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Research project/Research Group website

<http://particles.uv.es/>



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 713673.