

**Seminario Departamento de Física Fundamental**

**Title:**

**Higgs and Dark Matter Production from SUSY Decays**

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Abstract:

Searches for the Higgs boson as well for the production of Dark Matter (DM) are currently performed at the LHC. Similar measurements will also be possible at a future linear  $e^+e^-$  collider (ILC, CLIC). In order to determine the underlying model it is crucial to measure the masses and couplings of Higgs and DM particles with highest precision.

If Supersymmetry is realized in nature, a light Higgs boson should be discovered at the LHC and the lightest SUSY particle (LSP) is a perfect candidate for DM. An interesting production mechanism for the Higgs and the LSP is the decay of heavier SUSY particles. Measuring these decays to high accuracy will provide important information on the Higgs and DM.

We provide high-precision predictions for these decays, which are crucial for the correct interpretation of the experimental data. Our predictions are obtained in the Minimal Supersymmetric Standard Model (MSSM) including complex phases and constitute the most advanced calculations of these decays.