

# FCC Higgs studies at CIEMAT

**J. Alcaraz, M. Cepeda (CIEMAT)**

# Current manpower and focus

- **Manpower: Juan Alcaraz, María Cepeda (part time):**
  - + 1-2 students (currently at the level of master theses)
- **Physics focus: study of differential HZ distributions and the general structure of the process:**
  - Some studies were done before at ILC/CLIC and also CEPC
  - Slightly different approach + more experimental focus:
    - General parametrization of the  $ee \rightarrow HZ$  process as a whole
    - Connecting anomalous couplings with EFT parametrizations
    - Using reweighting procedures, optimal observables, ...
    - Already using existing most precise HZ\_recoil samples (Whizard samples, + some full 4-fermion specific backgrounds)
  - Currently performing a master work including interpretation in compositeness scenarios → final results by July 2022
  - Obvious connections with performance:
    - Mass and angular resolutions, tagging if H decays are exclusive
    - Investigate the effect of imposing H,Z mass constraints
  - Possible future extensions:
    - Combination with  $eeH$ ,  $\nu\nu H$ ,  $\sqrt{s} = tt\bar{t}$  threshold information