

# Report from WG1

Conveners + all the others

We will circulate the document to the mailing list tomorrow and get feedback + names

Current version VERY preliminary – linked to the agenda

# Structure

1. Introduction
2. Experimental status
3. Interpretation of the Higgs boson search results
4. From LHC to tera-scale physics
5. Conclusions

## 2. Experimental status

- LHC new results from Atlas and Cms: exclusions and observation of the new Higgs boson like state
- Tevatron results
- LEP direct search and EW precision data
- What we know today about JPC and couplings of the 125 GeV resonance.

# 3. Interpretation of the 125 GeV resonance

- Compatibility with the SM
- General parameterization in terms of effective Lagrangian
- Compatibility with BSM scenarios: Extended Higgs sectors (2HDM, SUSY...), composite Higgs Higgs imposters (dilaton and co),...
  - Which model is disfavored or favored?
- Further compatibility with EW precision data, flavor physics

## 4. From the LHC to the tera-scale physics

- LHC ( $\sim 14$  TeV,  $300 \text{ fb}^{-1}$ )
- HL – LHC ( $\sim 14$  TeV,  $3000 \text{ fb}^{-1}$ )
- HE – LHC ( $\sim 33$  TeV)
- ILC (90 – 1000 GeV,  $1000 \text{ fb}^{-1}$ )
- CLIC ( up to 3 TeV,  $3000 \text{ fb}^{-1}$  )
- LEP3 ( 240 GeV, )

We will only briefly comment on: muon collider,  
LHeC, VLHC

## 4. From the LHC to the tera-scale physics (2)

Each sub-section will comment on:

- the expected precision for the properties of the 125 GeV state (JPC, couplings, HHH),
- on the discovery potential for BSM Higgs physics
- on VV-scattering

# 5. Conclusions

- Document will be circulated tomorrow night
- Feedback by end of the week
- Further iteration
  
- SUBMISSION on the 31-July-2012