

# GLD Physics Analyses

A 3D cutaway rendering of the GLD detector structure. The central part is a large, multi-layered cylindrical structure with a central opening. A long, thin tube extends from the right side into the center. The structure is supported by a base of yellow and grey blocks. The background is white with a blue horizontal band across the top.

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# *Current Manpower*

- Tohoku Univ. : 1 staff + 1 student  
→ will work on physics study
- Niigata : 1 staff  
→ currently working on ZH study w/ Satellites.
- Shinshu Univ. : 1 staff + 1 student  
→ will work on physics study. They already have an experience to run MarlinReco.
- KEK : 2 staff  
→ software issues.
- Tokyo Univ. : 1 staff
- Kobe Univ. : 1 staff  
→ currently working on clustering method for strip calorimeter.
- You are encouraged to participate in the WG.

# *On-going Physics Studies*

- These studies are originally not for the optimization study so far, but would be useful for the future optimization study. Detail of each study will be reported at next optimization meeting.
  - ZH study w/ Jupiter/Satellites
    - $ZH \rightarrow \nu\nu H$  w/ different Higgs mass.
  - ZHH study w/ QuickSim
    - Development of analysis code is in progress.
  - ttH study w/ QuickSim
    - Development of analysis code is in progress.

# Benchmark Processes

## Tentative list of the benchmark processes

- $Zh \rightarrow llX$ ,  $m_h = 120 \text{ GeV}$ ,  $E_{cm}$  to be discussed.
    - Test of tracker momentum resolution
  - $Zh; h \rightarrow cc, \tau\tau, WW^*$ ,  $m_h = 120 \text{ GeV}$ ,  $E_{cm} = 350 \text{ GeV}$ 
    - Test of heavy flavor tagging (vertex performance)
  - selectron pair at Point 1,  $E_{cm} = 500 \text{ GeV}$ 
    - Test of tracker momentum resolution
  - chargino pair/neutralino pair at Point 5,  $E_{cm} = 500 \text{ GeV}$ 
    - Test of Particle Flow ( $WW/ZZ$  separation)
  - Multi Jets process ( $Zhh, tth$ )
- \* If you have a particular physics channel, please let us know by e-mail.