

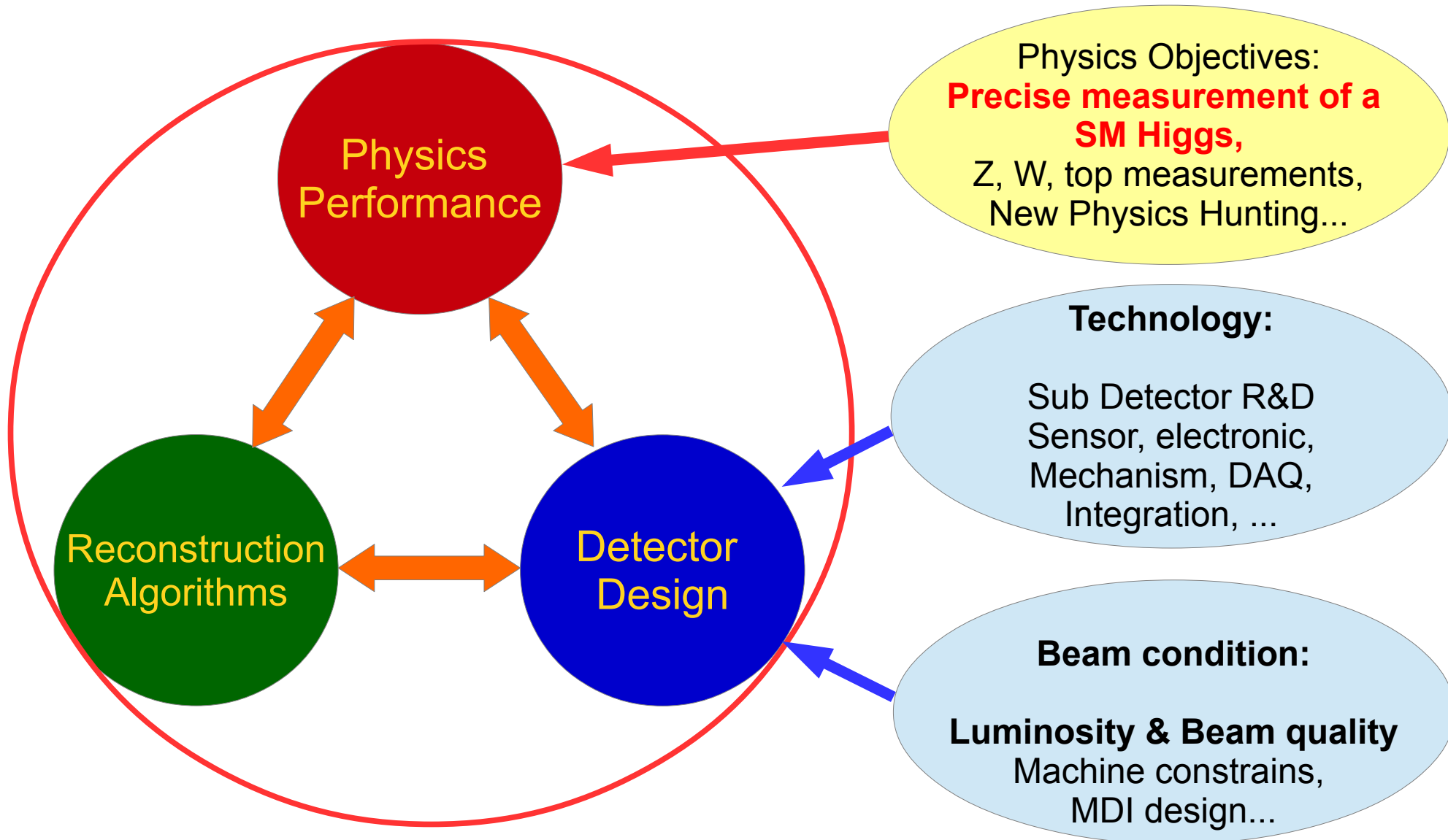
Plan: toward CDR - TDR

- Status of physics analysis
 - All necessary samples/tools prepared (generator, simulation, reconstruction, analysis...)
 - Fast simulation analysis: on going
- Very tight schedule: Organization and Action!
- Priorities of future work:
 - Physics analysis of different observables.
 - Accomplish Fast Simulation level analysis of **SM Higgs** before Dec.
 - Change geometry - Full Simulation
 - Reconstruction algorithm optimization at different geometry
 - Detector R & D:
 - Hardware & electronics design, validation, modeling of response, development of simulation softwares, integrating, optimization, ...
 - Tag the optimized detector geometry & operational plan

Feedback

- 54 questionnaire
 - 理论分析及产生子研究： 14
 - 快速模拟及物理分析： 37
 - 探测器几何细致修正及全模拟： 6
 - 重建软件的开发和优化： 17
 - 硬件开发： VTX 5
 - 硬件开发： Tracker 5
 - 硬件开发： Calorimeter 7
 - 硬件开发： Coil, Muon 4
 - 其他： 1 (Trigger & DAQ)

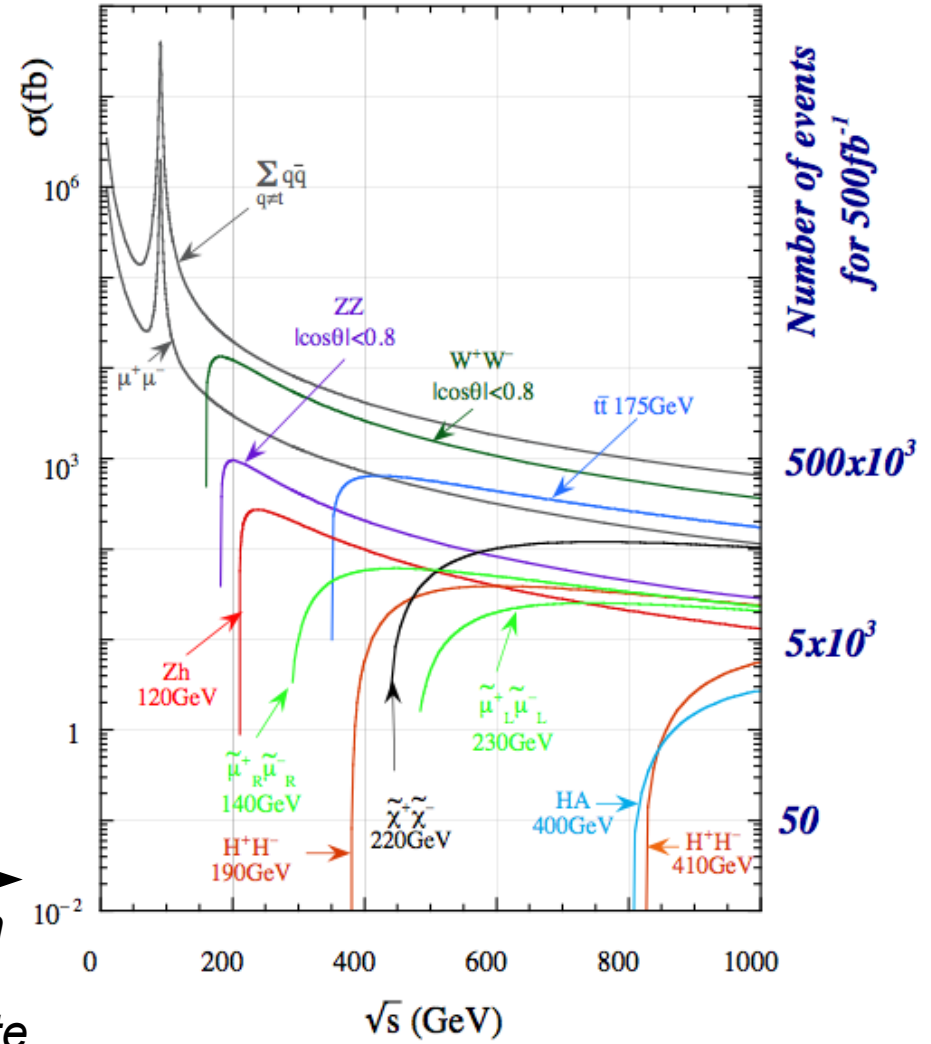
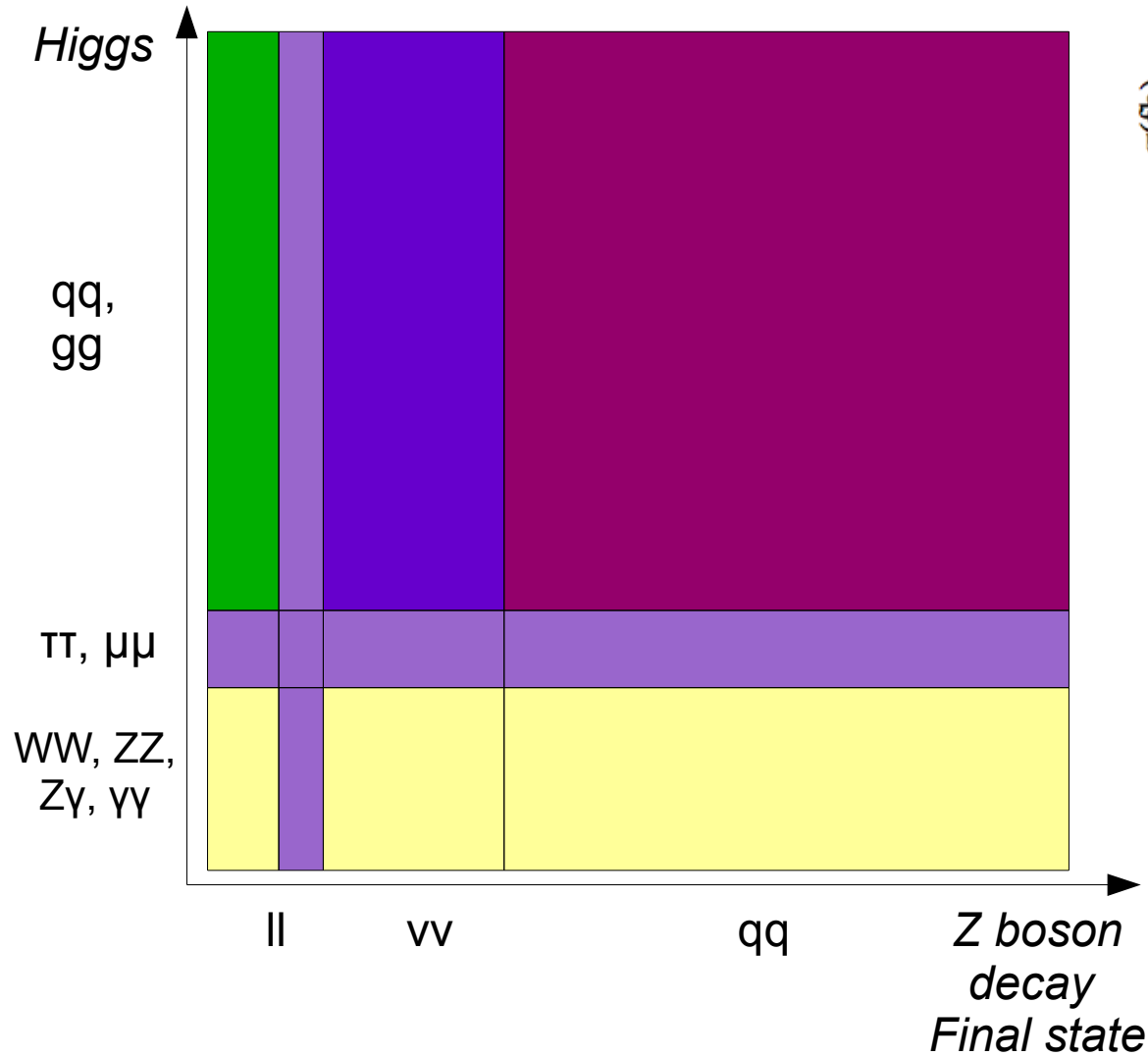
Detector optimization: Basic ingredients



Detector Design

- We are in badly need of the input from detector groups:
 - VTX, TPC, ECAL & HCAL...
 - Investigating into current technology (eg, ILC TDR)
 - Options, status & feasibility now & in the future
- However, some global scaling can still be done quickly
 - Changing Half Z, validate the geometry & Samples
 - Change Calorimeter Thickness /As the leakage should be less serious in 250GeV
 - Change Calorimeter Number of active layer
- Gather those general information, and converge to a frozen design!

Physics Performance Analysis



Classification of Physics Analysis tasks

- From the Final State
- From the tagging/reconstruction algorithm
 - Tau tagging
 - VV^* event tagging
- Rare decays:
 - $\text{Br}(H \rightarrow \mu\mu)$
 - $\text{Br}(H \rightarrow \gamma\gamma)$...
- Beyond Higgs Measurement (Z pole, etc)

Reconstruction algorithm

- PFA – Arbor optimization
 - Cluster ID: EM, Had, MIP, Fragments
 - Cluster – Track matching optimization
 - Particle ID: lepton (e, mu), photon, charged hadron (pi, kaon, proton), neutral hadron
 - Cluster Energy Estimation: iterate with ID information
 - Global Jet Energy resolution optimization
 - Tau tagging algorithm
 - Jet Clustering algorithm optimization...
- Iterate with reconstruction of single particle, tau jet, qq event, ZH event and other background **AT DIFFERENT GEOMETRIES!!**

Reconstruction algorithm

- Tracking...
- Flavor tagging...

Generator

- Contact person?
- SM Higgs event: Generator at different beam conditions
 - Communication with MDI (Machine Detector Interface group)
- Generator of new Physics
- Generator at Z pole, WW threshold

Organization

- *Organization:*
 - *Centralized Sample & Softwares at IHEP*
 - *Local computing environments setting at different institutes*
 - *Parallel analysis at different institutes*
 - *Physics analysis on different measurements*
 - *General/Specialized reconstruction algorithm developments*
 - *Sub detector design & Simulation tools development*
 - *Hardware developments & modeling of hardware performance*
- *Foreseen bi-weekly Skype/phone meeting & annual meeting*