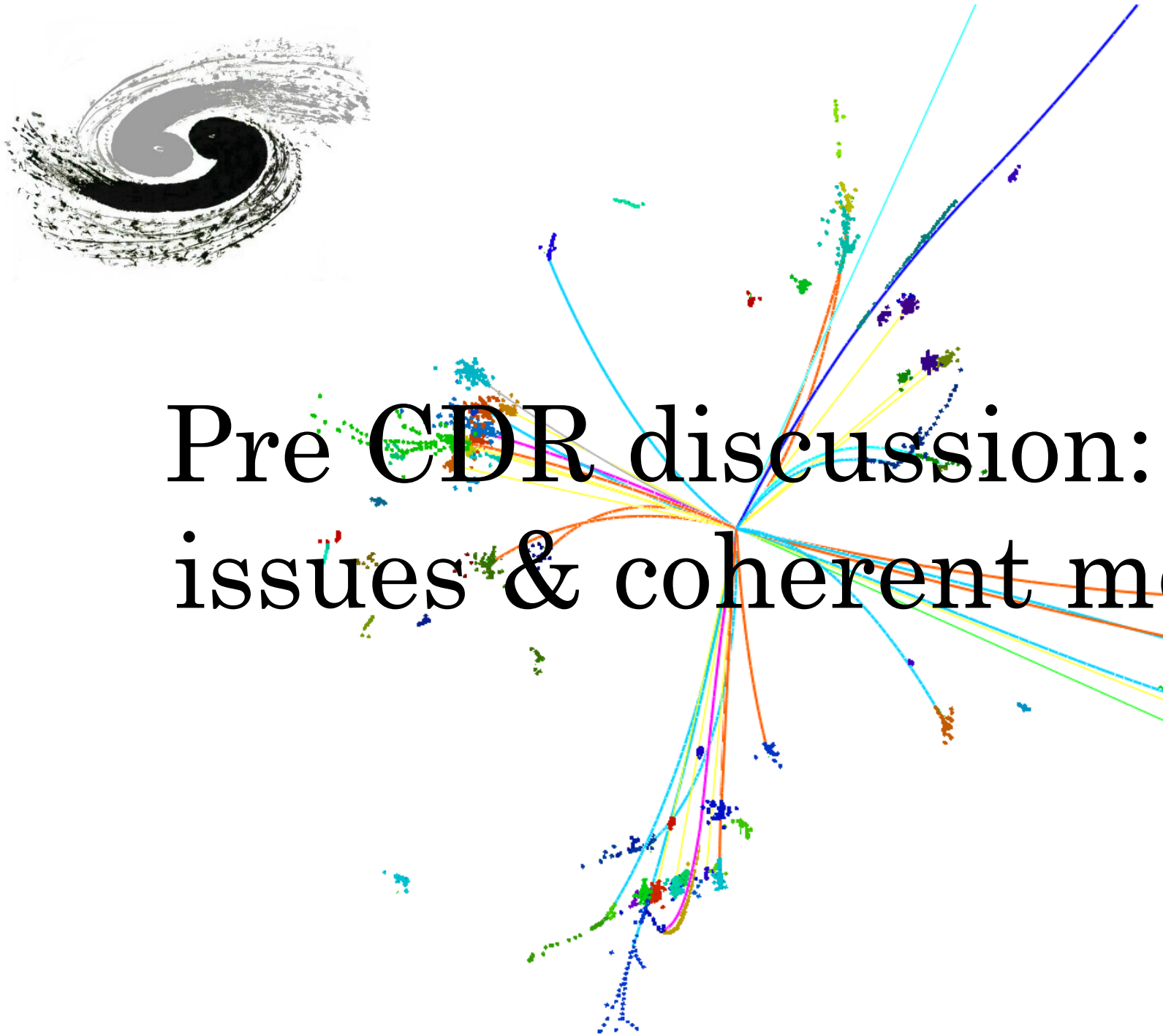


Pre CDR discussion: Key issues & coherent merge

Physics requirement: Tactic

- Accomplish half Full Simulation studies with ILD + Short L*, used for benchmark performance estimation

- Investigate into the benchmark distributions at other geometries, used for detector geometry optimization discussion
  - Smaller L* + Smaller TPC
  - Smaller L* + Smaller TPC + Less thick Detector & Larger Granularity
  - ...

MDI design

- A preliminary version of geometry
  - Benchmark beam backgrounds profile
  - VTX Inner radius
  - Discussion on field shielding/radiation robustness
  - Basic geometry, cone angle, number of disks
  - Performance studies, from track level (impact parameter - momentum measurements) to PFA/Flavor tagging level...
    - A careful evaluation is anyhow needed

Sub-Detector

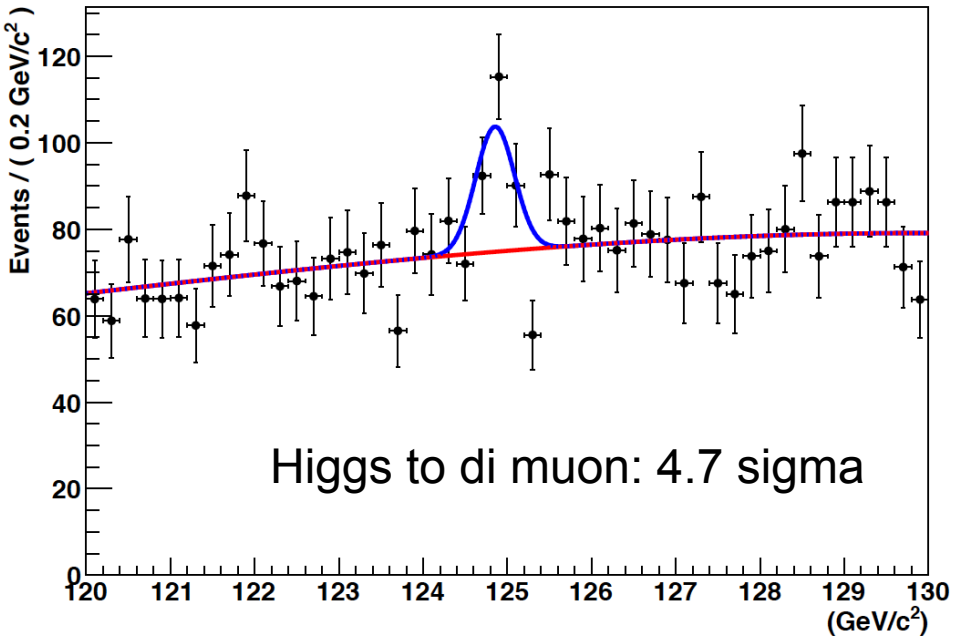
- No power-pulsing, technology feasibility of solutions
  - Active cooling
  - Low-power consumption chips/DAQ design(??)
  - Lower granularity
- Key sub-detector level performance study
  - Intrinsic performance: energy/momenta/efficiency studies
  - method to improve...
- Validation with Smaller L*: tracking & PFA performance
- LumiCal & Systematic control?
- **SubD Preferences wi/wo PR input: comments on available technologies, Cost Estimation & Technology Roadmap?**

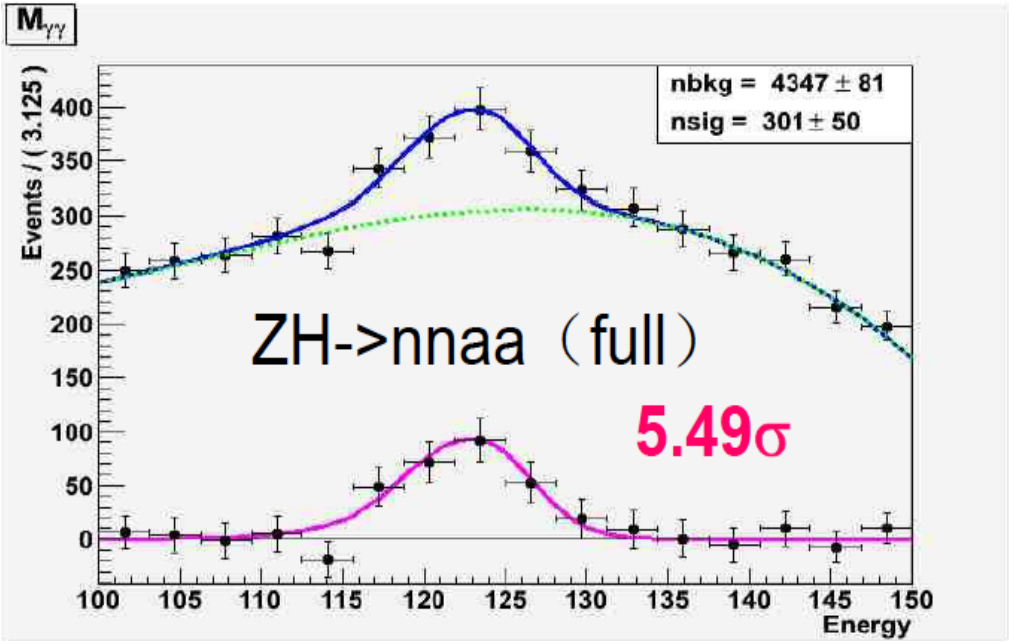
Physics Requirement: Link to sub detectors

- For each sub detector: add relevant physics motivation, discuss the most sensitive observables and dependency of final result & geometry...
  - TPC: mass, Xsec, Br(H→μμ), Br(H→inv)
  - ECAL: Br(H→γγ), neutrino generation
  - HCAL: PFA, muon tagging...
  - VTX: Br(H→b, c, g), rare decay limit of Z, etc
  - Global: B-Field & Calo Granularity...
  - **Be stated in sub-detector sections or physics requirement (optimization) section?**

- Objective: supporting one benchmark detector design -

To improve: Wish from Physics Performance





- We are at the boundary of 5 sigma...
- Can you improve the tracking performance by 30 – 50%
- Can you improve the ECAL energy resolution by 30% - 50% without harming PFA performance?
- We need a curve: cost – performance at benchmark luminosity

Physics Requirement & Sub Detectors

- Basic contents – almost there
  - Physics Requirement: wait for updates of full simulation analysis result & better interpretation
  - Sub Detectors: show our own understand, preference & even road map of the technology, etc
  - Cost?
- How to merge them coherently
  - SubD – breakdown to intrinsic low-level resolutions (Energy resolution, efficiency/resolution of momentum, impact parameter, etc)
  - Integrate a part of optimization discussion based on physics performance (can simply quote the optimization section in Physics Requirement section: MDI – Flavor tagging performance, ECAL – g(Hγγ) + some PFA performance, Tracking - g(Hμμ)
  –

Backup: Synchronize detector model names

- ILD
- ILD_v2, TPC Size reduced by 25%
- cepcdet_v0, test model (see Xu yin/Chen xun's talk) with reduced TPC size, reduced L* (1.8m), reduced number of calo layers.
- cepcdet_v1, working model: ILD with reduced L* (1.5 m)