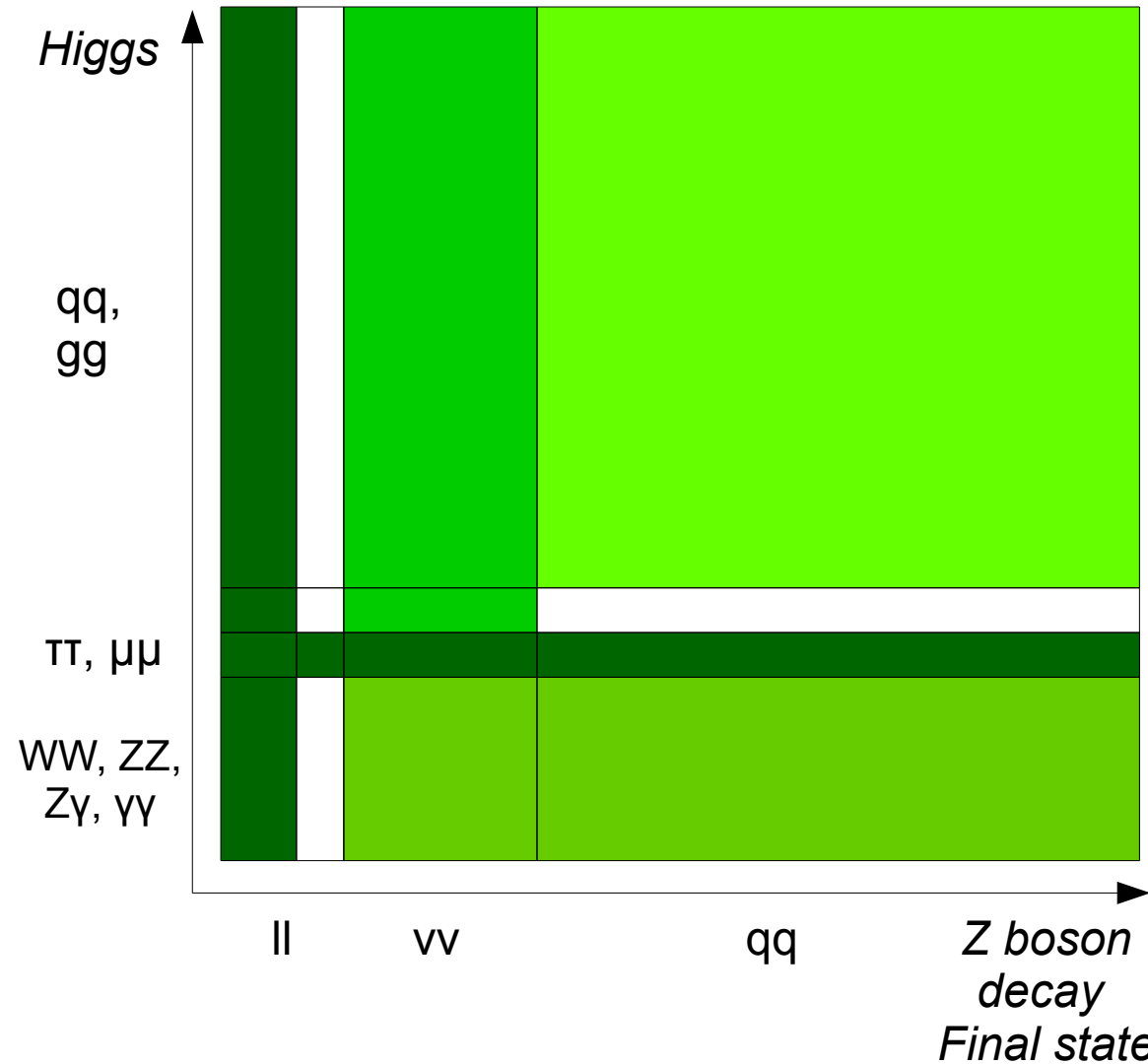# Discussion on Pre-CDR: General Layout

Manqi

Higgs

All: essential bkgrd need to be processed
At Full simulation level:
    PreCut;
    ZZ inclusive;

H->bb, cc, gg
    qqH: Jet Clustering, template fit bias,
    vvH: should cover W fusion
    LlH: compare different template fit

H->WW, ZZ:
    Pursue full Coverage.

H->di muon
    Better understanding the event
Selection

H->di photon
    Be processed at Full Sim with
Mature converting photon recovery algo

Higgs: qq, gg ; ττ, μμ ; WW, ZZ, Zγ, γγ

Z boson decay Final state: ll, vv, qq

Higgs

- Higgs->tautau:

  - Flag Tau decay mode: leptonic/hadronic, 1-3 prong, #pi0

  - Develop Tau finder in multi-jet enviornment

- Higgs exotic

  - Leptonic: test Brems-recovery algo, catalogue according to adjoint fermion flavor

  - Hadronic: full coverage of benchmark points

  - Others? Flavor Changing Quarks?

- Interesting topics

  - H->WW/ZZ: team work!

  - Sigma(ZH) measurement via Z->qq recoil.

    - http://arxiv.org/abs/1509.02853

  - Differential Distributions

    - Higgs CP, O6 operators

EW

- Oblique parameters:

  - W mass, width;

  - Z mass, width;

  - Afb;

  - sin(theta_w);

  - alpha_s;

  - Neutrino generation...

- For both Higgs/EW, we should try to think about Data-Driven method to control the systematic/background shape

Performance & Reconstruction

- PID:

  - Propose working point for different analysis

- Isolation photon/lepton finder

  - Analysis dependent

- Brems-photon recovery

  - Essential for any measurements concerning electron/positron;

  - Added value also for muon, especially high-E muon

- Converted photon finder:

  - Straight forward, essential for any measurement with photon...

Geometry optimization

- Simulation tools
- Validation: Geometry – performance – analysis
- Performance:
  - Tracks;
  - PFO
    - Single object
    - Double object
    - Tau, jets
  - Flavor tag

Essential work/services

- Sample production & validation;

- Reconstruction/Software tools developing;

- Paper/Note review & editing;

Let's move