ILD Performance

- Event based
  - FlavourTag (Taikan & Masakazu):
    - Efficiency vs rejection rate, Z->qq, ZZZ->qqqqqq, jet-based
      - B vs light, b vs c
      - C vs light, c vs b
    - Maybe ttbar?
  - VertexFinding (Sviatoslav & Roman):
    - Efficiency to find B / D vertex as function of
      - Number of charged particles
      - Distance from IP
    - Number of correctly assigned tracks
    - „2D colour matrix"

- Event-based
  - Tracking (Yorgos, Tino)
    - Efficiency and bad track rate in ttbar, mumu vs p, theta
    - With >= 4 Si hits ? Or >= 4 in VXD ? In innermost
  - Particle ID in jets (Masakazu)
    - same sample as flavour tag
    - Efficiency / fake rate vs momentum, theta, …
    - Same as single particle PID benchmarks
  - Jets (Bono & Cambride group, Lan)
    - Invariant mass of uds dijets
    - Jet energy scale
    - Residual between
      - True and reco photon energy
      - True and reco neutral hadron energy
      - True and reco charged PFO energy
      - „PFO finding efficiency / fake rate": but based on PFOs

- **Single particle based**
  - Particle ID: (Masakazu)
    - separately for dE/dx based, cluster-based, total
    - particles: e, mu, pi, p, K,
    - 1d histograms / matrix with probability to identify true type i as reco type j for fixed momentum: 0.5 GeV, 1 GeV, 2 GeV, … 10 GeV
    - e/pi separation vs p etc
  - Photons: (Daniel?, Graham)
    - Efficiency / purity vs energy, theta
    - Energy resolution, x,y,z resolution of cluster position, intrinsic cluster direction
    - Number of reco photons per true photon,
  - Pi0: Graham
    - „same as photons"
    - Mass resolution

  - Taus ???: (Hieu, Taikan, Mikael)
    - „same as photons"
    - Decay mode separation
  - V0, Conversions, J/Psi
    - Same as photon
    - Mass resolution

- Tracking (Yorgos & Tino)
  - Single mu: resolution(d0, pt) vs momentum, theta
  - Single mu efficiency vs p, theta, d0
  - Pulls for dEdx
- FWD Tracking: included

- BeamCal
- LumiCal
- Muon system ;-)

- General: put 4vectors / stdhep on grid and include in ILDPerformance descriptions