Benchmarking Plans, Andrei Nomerotski, 30 Jan 2008

1. $e^+e^- \to Zh, \to \ell^+\ell^- X$, $l - e, \mu$; $m_h - 120$ GeV at $\sqrt{s}$–0.25 TeV — SLAC
2. $e^+e^- \to Zh$, $Z \to q\bar{q}, \nu\bar{\nu}$; $h \to c\bar{c}$, $\mu^+\mu^-$; $m_h = 120$ GeV at $\sqrt{s}$=0.25 TeV — Michigan/Bristol ?
3. $e^+e^- \to \tau^+\tau^-$, at $\sqrt{s}$=0.5 TeV — Texas A&M ?
4. $e^+e^- \to t\bar{t}$ at $\sqrt{s}$=0.5 TeV — RAL/Oxford
5. $e^+e^- \to \tilde{\chi}_1^+\tilde{\chi}_1^-/\tilde{\chi}_2^0\tilde{\chi}_2^0 \to W^+W^-\tilde{\chi}_1^0\tilde{\chi}_1^0$ / $ZZ\tilde{\chi}_1^0\tilde{\chi}_1^0$ at $\sqrt{s}$=0.5 TeV — SLAC
6. $e^+e^- \to c\bar{c}, b\bar{b}$, at $\sqrt{s}$=0.5 TeV; — Oxford
7. $e^+e^- \to Zhh$, $m_h = 120$ GeV at $\sqrt{s}$=0.5 TeV; — Oxford
8. $e^+e^- \to \tilde{\tau}_1\tilde{\tau}_1$, at Point 3 at $\sqrt{s}$=0.5 TeV; — Texas A&M/Colorado ? /Montenegro
9. $e^+e^- \to \tilde{t}_1\tilde{t}_1^* \to c\bar{c}\tilde{\chi}_1^0\tilde{\chi}_1^0$, $m_{\tilde{t}_1} = 120$ GeV, $m_{\tilde{\chi}_1^0} = 100$ GeV, at $\sqrt{s}$=0.5 TeV — Lancaster
10. $e^+e^- \to \tilde{b}_1\tilde{b}_1^* \to b\bar{b}\tilde{\chi}_1^0\tilde{\chi}_1^0$, at $\sqrt{s}$=0.5 TeV — Oxford/Montenegro
11. $e^+e^- \to \mu^+\mu^-$, at $\sqrt{s}$=0.5 TeV — SLAC
12. H→ γγ — RAL

Comments

- We have a good model to do benchmarking studies
  - Develop analyses with fastMC
  - Use PerfectPFA to probe material effects (full GEANT MC)
  - Switch to final reconstruction when ready
- We have a usable model to use the LCFI vertexing/flavour tagging package
  - though Marlin-lcsim.org reflections in LCIO
- Manpower is a concern
  - So far kept most of people at SLAC/RAL/Oxford working on benchmarking but this will change for UK in 2009
  - Funding problems in UK does not affect present students but will affect academics and postdocs
  - Students in Oxford are in position to study simultaneously SiD and ILD
- Adjusting plans to have LoI in April 2009 should not be a problem