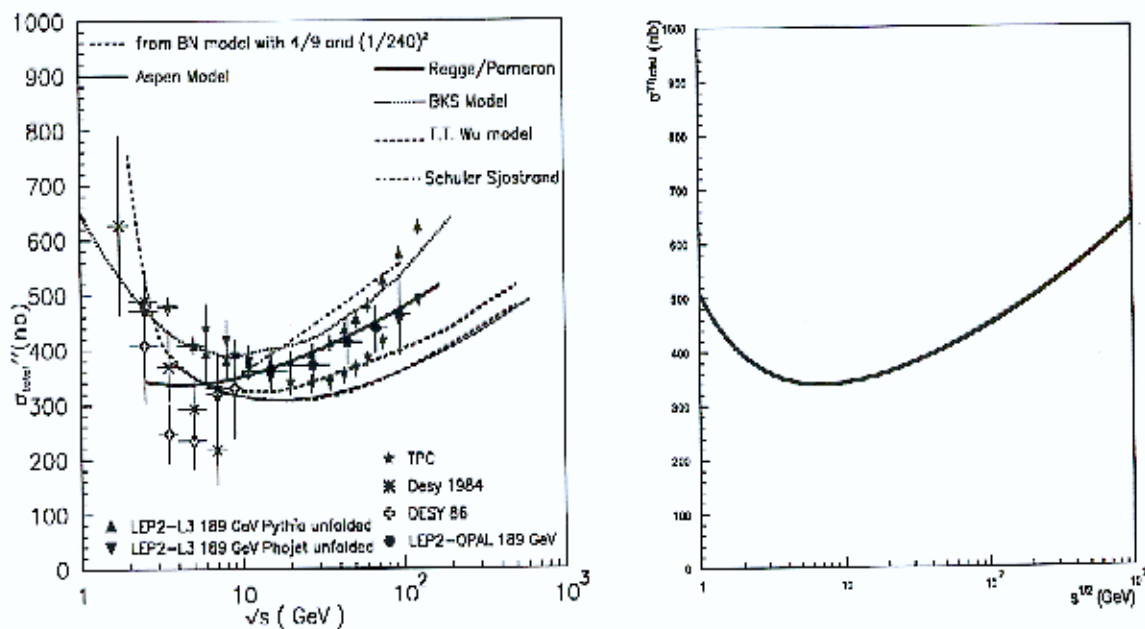


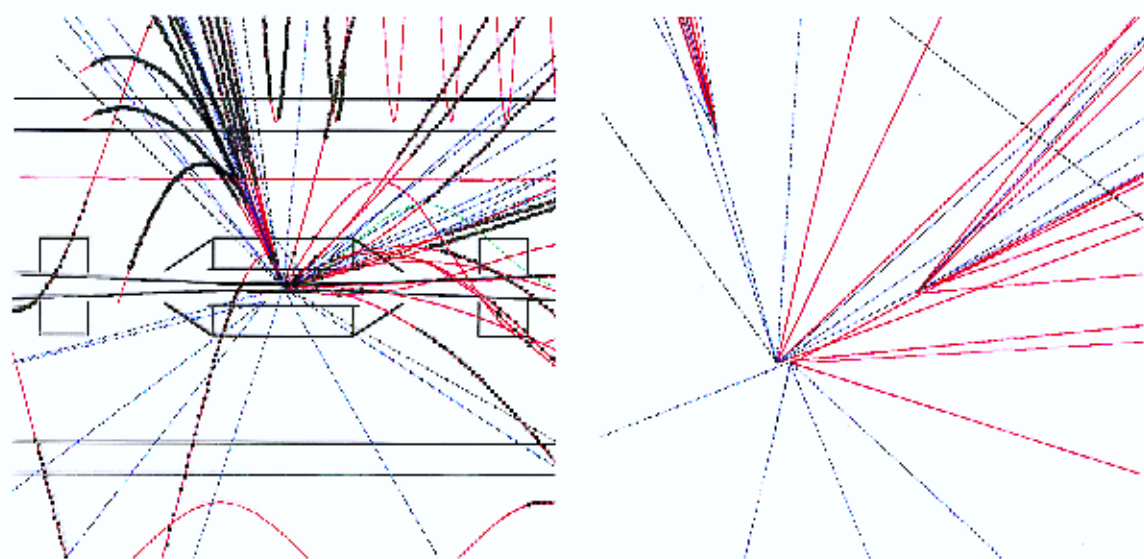
$\gamma\gamma$ Background

- ◆ At TESLA: $L = 2.2 \times 10^{-3} \text{nb}^{-1} \text{BX}^{-1}$
- ◆ $\sigma(e^+e^- \rightarrow \gamma\gamma \rightarrow \text{jets}) = 40 - 60 \text{ nb}$ at $\sqrt{s} \simeq 350 \text{ GeV}$.
- ◆ Prob. $\gamma\gamma \rightarrow \text{jets}$ overlap with physics evt.
 $P = \sigma_{\gamma\gamma} \times L = 0.088 - 0.132$ with perfect bunch ID.
- ◆ due to high luminosity per bunch
 $P(\text{TESLA}) \gg P(\text{other LCs})$.



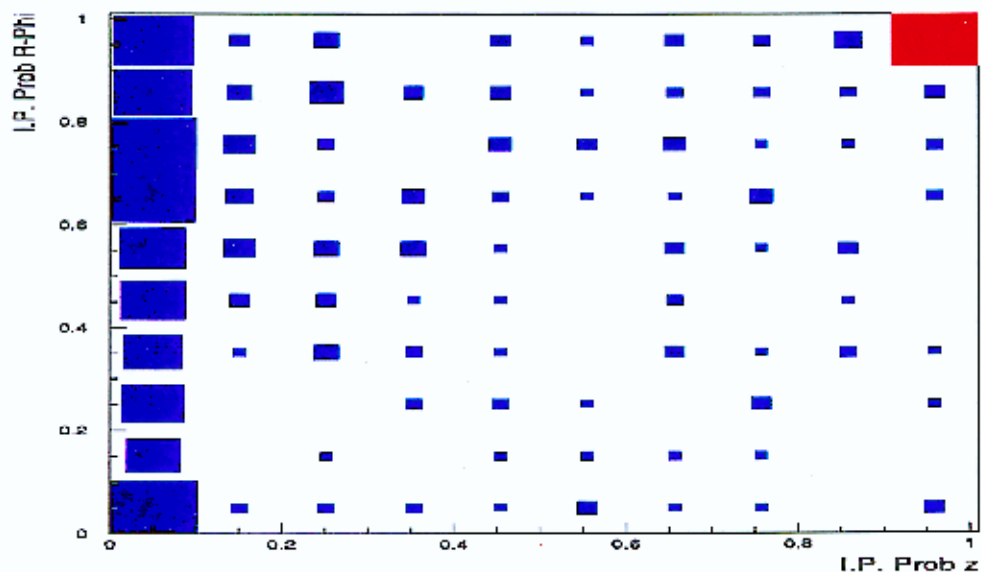
1. Eff. loss for $H\nu\bar{\nu}$ analysis $\simeq 0.05 - 0.12$;
2. $\gamma\gamma$ evts. to affect jet flavour tagging;
3. Syst. from $\gamma\gamma$ event rate change with accelerator parameters.

$H^0\nu\bar{\nu} + \gamma\gamma$ EVENT

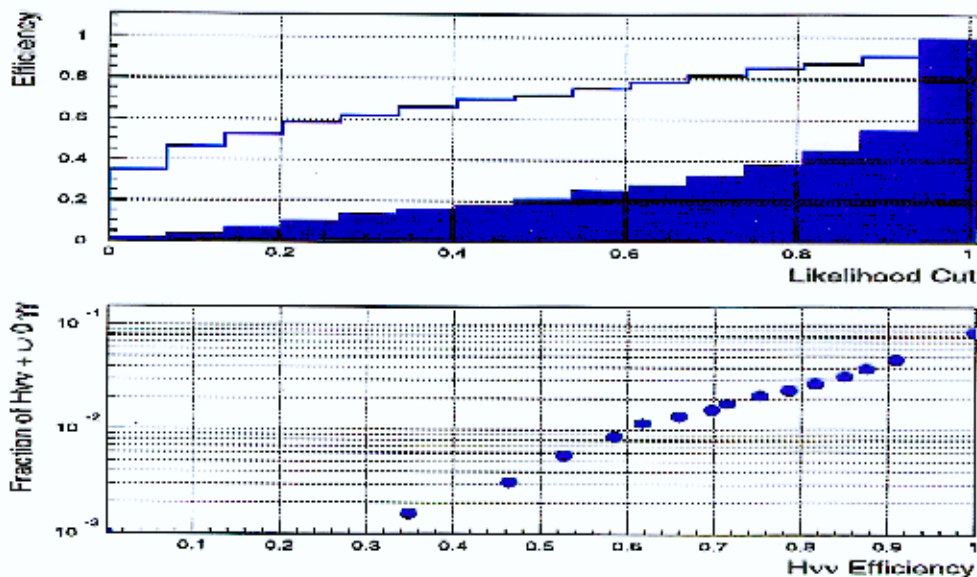


1. Forward hadronic activity;
2. Production vertex displaced in z but not in $R - \phi$

DISTRIBUTION OF I.P. PROBS FOR $\gamma\gamma$ EVENTS



$\gamma\gamma$ TAGGING EFFICIENCY



- ◆ $\gamma\gamma$ bkg. overlapped to Higgs decays efficiently reduced by combination of kinematics and vertexing;
- ◆ Residual $\gamma\gamma$, concentrated in very forward region, has limited interference with event reconstruction.

RECOIL MASS

JJ INVARIANT MASS

