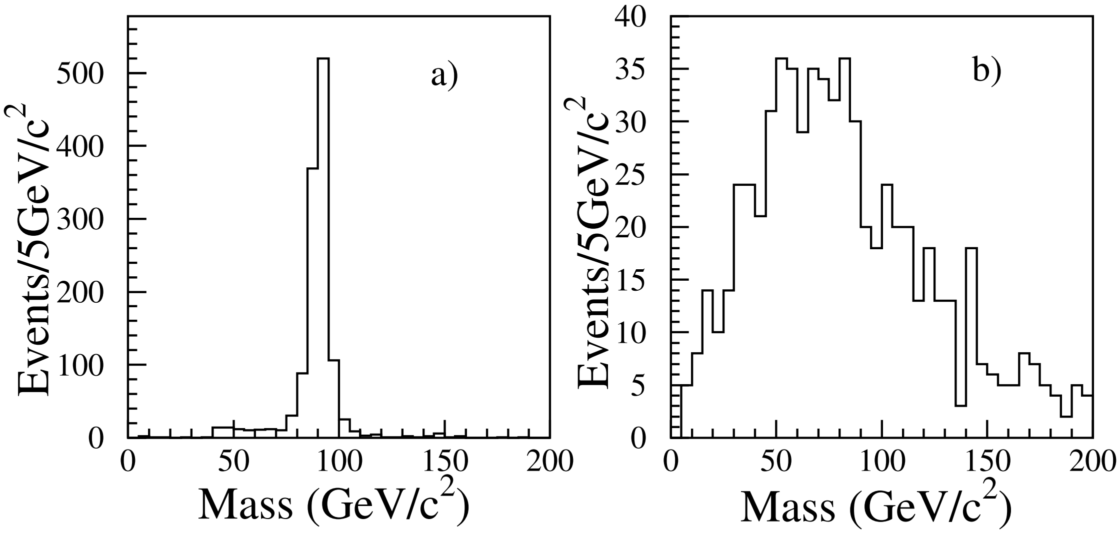

Figure 6: Dilepton invariant mass distributions. a) Dielectron and dimuon data. b) Monte Carlo simulation for M_{top}=160 GeV/c^2 (unnormalized).

from lepton misidentification and from $b\bar{b}$. Non-uniformities in the calorimeter cause asymmetric, non-Gaussian tails in the corrected jet response. Most Drell-Yan events with large $\not{E}_{\rm T}$, near or above the 25 GeV threshold, contain a jet with corrected energy that has fluctuated below (rather than above) the true parton energy. In such cases the $\not{E}_{\rm T}$ direction is nearly aligned with the jet direction. For events with $\not{E}_{\rm T} < 50$ GeV, we require $\Delta\phi(\not{E}_{\rm T}, j) > 20^o$, where $\Delta\phi(\not{E}_{\rm T}, j)$ is the azimuthal angle between the direction of $\not{E}_{\rm T}$ and the direction of the nearest jet. Jets considered here must be in the central or plug calorimeters ($|\eta| < 2.4$) and have uncorrected $\mathrm{E_T} > 10$ GeV. The $\not{E}_{\rm T}$ magnitude and direction requirements were chosen to achieve good rejection in a Drell-Yan control sample of Z^0+jet events. The distributions of $\Delta\phi(\not{E}_{\rm T}, j)$ vs $\not{E}_{\rm T}$ for the Z^0+jet samples are shown in Figure 7, together with the prediction for $t\bar{t}$ Monte Carlo events.

A similar cut, rejecting events where the $\not{E}_{\rm T}$ points along the direction of one of the leptons, reduces background from $Z \rightarrow \tau\tau$. The large $\not{E}_{\rm T}$ in these cases comes from energetic neutrinos from a $\tau \rightarrow \ell\nu\nu$ decay. For events with $\not{E}_{\rm T} < 50$ GeV, we require $\Delta\phi(\not{E}_{\rm T}, \ell) > 20^o$, where $\Delta\phi(\not{E}_{\rm T}, \ell)$ is the azimuthal angle between the direction of $\not{E}_{\rm T}$ and the direction of the nearest lepton. The distribution of $\Delta\phi(\not{E}_{\rm T}, \ell)$ vs $\not{E}_{\rm T}$ for a $\mathrm{Z}^0 \rightarrow \tau\tau$ simulation is shown in Figure 8 together with the prediction for top Monte Carlo events. The distribution of the smallest angle between $\not{E}_{\rm T}$ and the closest lepton or jet versus $\not{E}_{\rm T}$ is shown in Figure 9 for the 120 ee and $\mu\mu$ events passing the invariant mass cut, for the 5 $e\mu$ events, and for top Monte Carlo simulation. The $\not{E}_{\rm T}$ magnitude and direction cuts are 76% efficient for M_{top}=160 GeV/c^2. After these cuts, there are no ee or $\mu\mu$ events remaining. Two $e\mu$ events survive.

For high mass top events, the two b-quarks can deposit considerable energy in the calorimeters. A better separation between signal and backgrounds can be obtained by requiring two jets in the central or plug calorimeters ($|\eta| < 2.4$) with