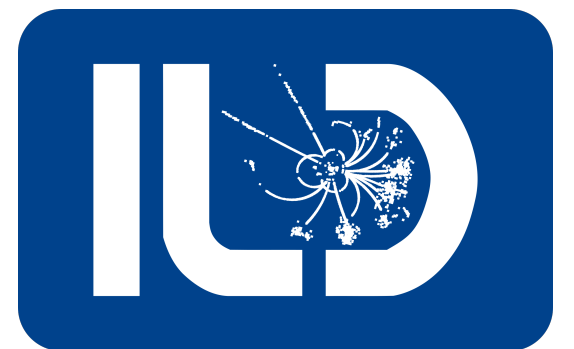


Recent progress on $e^+e^- \rightarrow \text{gamma}Z$ analysis

Takahiro Mizuno



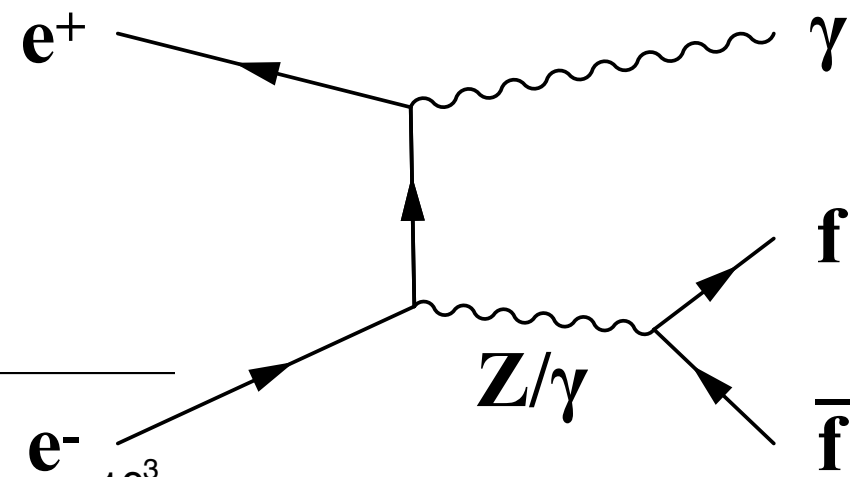
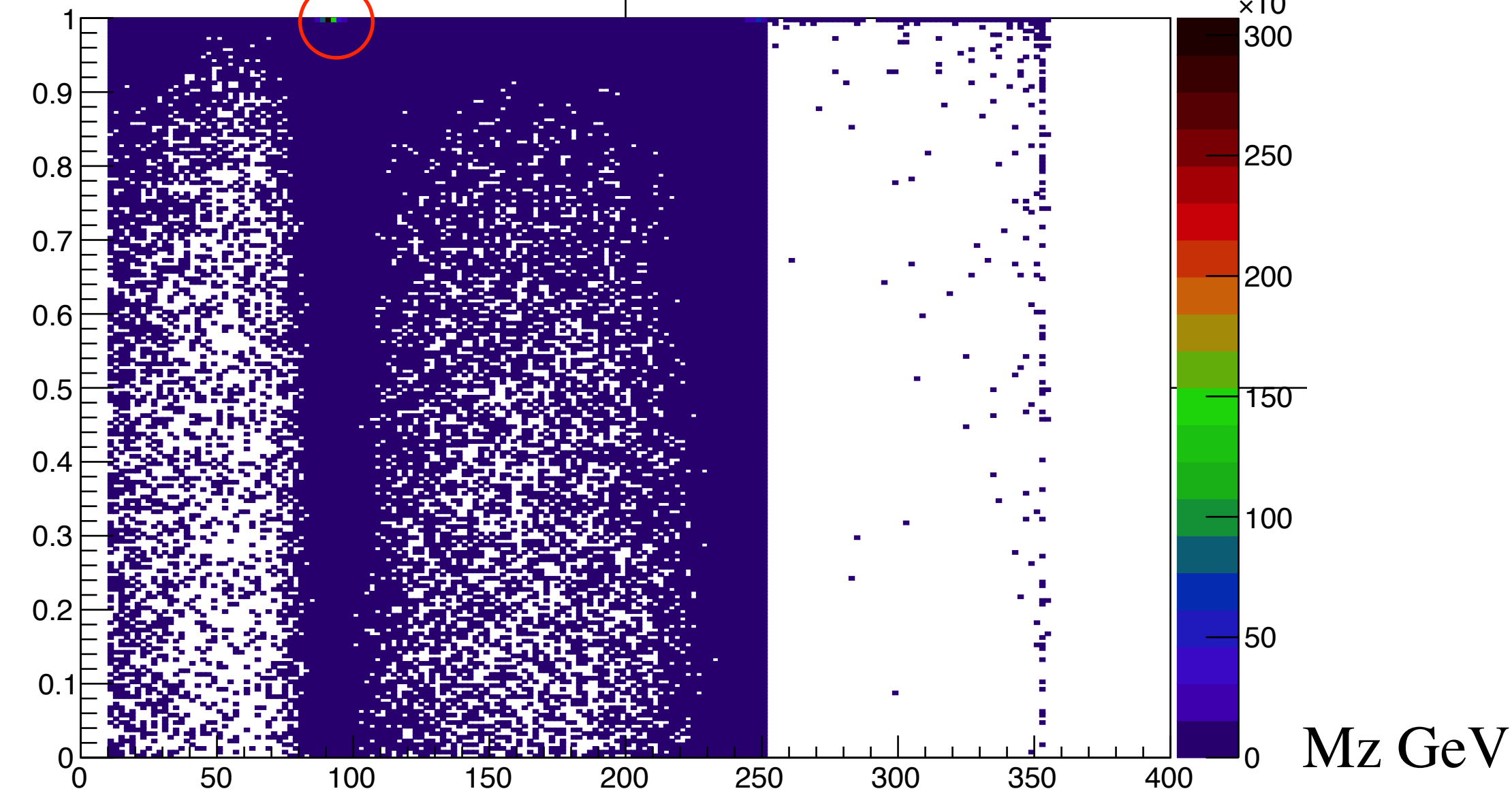
Signal event definition

Signal event: radiative return

eLpR events

$|\cos \theta_\gamma|$

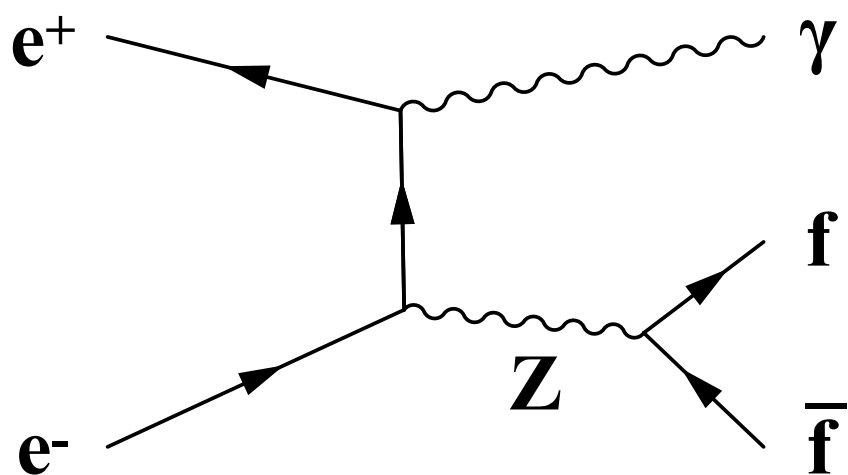
`abs(cos(photonthetaMC)):mzgen`



Efficiency Table

Signal & Background efficiencies

Signal



Cut A+B Signal

Signal event ($e^+e^- \rightarrow \text{gamma } Z$):
 A. $80 \text{ GeV} < M_{Z(\text{truth})} < 100 \text{ GeV}$
 B. $|\cos\theta_{\gamma(\text{truth})}| > 0.999$

| | $2f_z_h$ e_{LPR} | $2f_z_h$ e_{RPL} |
|--|-------------------------|-------------------------|
| Before selection | 1.000 | 1.000 |
| #Photon = 0 | 0.957 | 0.956 |
| $50 \text{ GeV} < M_z < 160 \text{ GeV}$ | 0.939 | 0.939 |

| | $4f_sw_sl$ e_{LPL} | $4f_sw_sl$ e_{LPR} | $4f_sw_sl$ e_{RPL} | $4f_sw_sl$ e_{RPR} | $4f_sze_sl$ e_{LPL} | $4f_sze_sl$ e_{LPR} | $4f_sze_sl$ e_{RPL} | $4f_sze_sl$ e_{RPR} | $4f_sznu_sl$ e_{LPR} | $4f_sznu_sl$ e_{RPL} |
|--|---------------------------|---------------------------|---------------------------|---------------------------|----------------------------|----------------------------|----------------------------|----------------------------|-----------------------------|-----------------------------|
| Before selection | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| #Photon = 0 | 0.861 | 0.923 | 0.972 | 0.862 | 0.377 | 0.446 | 0.393 | 0.367 | 0.993 | 0.994 |
| $50 < M_z < 160 \text{ GeV}$ | 0.721 | 0.488 | 0.461 | 0.716 | 0.043 | 0.053 | 0.055 | 0.044 | 0.668 | 0.613 |

Recent Progress

- Many backgrounds survive.
 - > New cut criteria
 - nPhoton
 1. Visible energy e.g. 120 to 160 GeV
 2. Visible particles direction e.g. $|\cos z| > 0.95$
 3. ycut
 - Mz

- Summarizing JES calibration results and making analysis note