Status on e^+e^- -> γZ process Benchmark

Takahiro Mizuno

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ICEPP Symposium

- Feb. 16th ~ Feb. 19th
  Shiga Lake Hotel (Nagano Prefecture)
- Number of participants: 41 (Most of them are students)
- 14min + 6min Oral Presentation

ILCにおけるe^+e^- -> γZ反応を用いた
測定器較正シミュレーション

ICEPP Symposium

- **Experiments:**
  ATLAS, MEG II, Super-Kamiokande, Hyper-Kamiokande, J-PARC E34, ANKOK, Belle II, IceCube, MuSIC, COMET, T2K, KOTO, ILC, NINJA, NEWSdm

- **Number of Presentations**

  Underground Exp (DM Search): 4

  Muon Exp: 5

  Detector R&D: 10

  Data Analysis, Back Ground Study: 4

  Trigger and Readout: 5

  Calibration Study: 3

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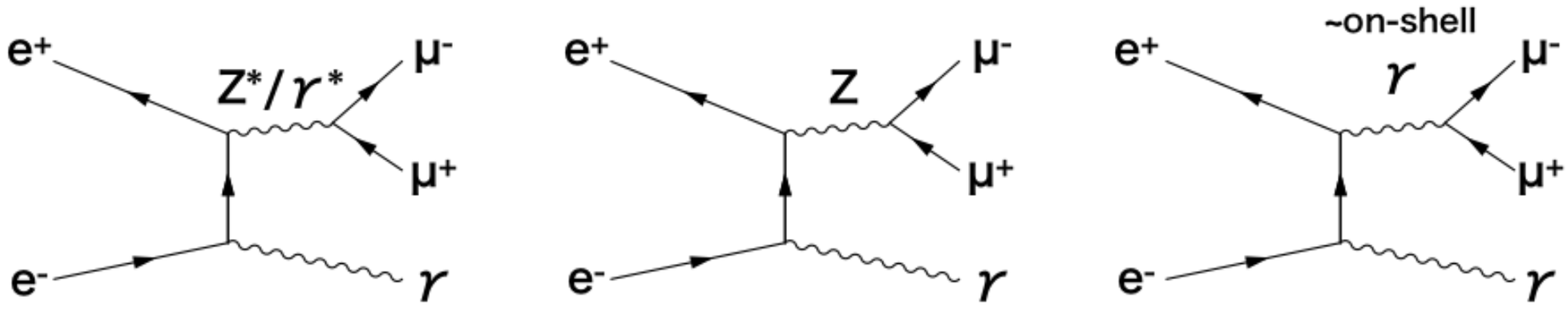
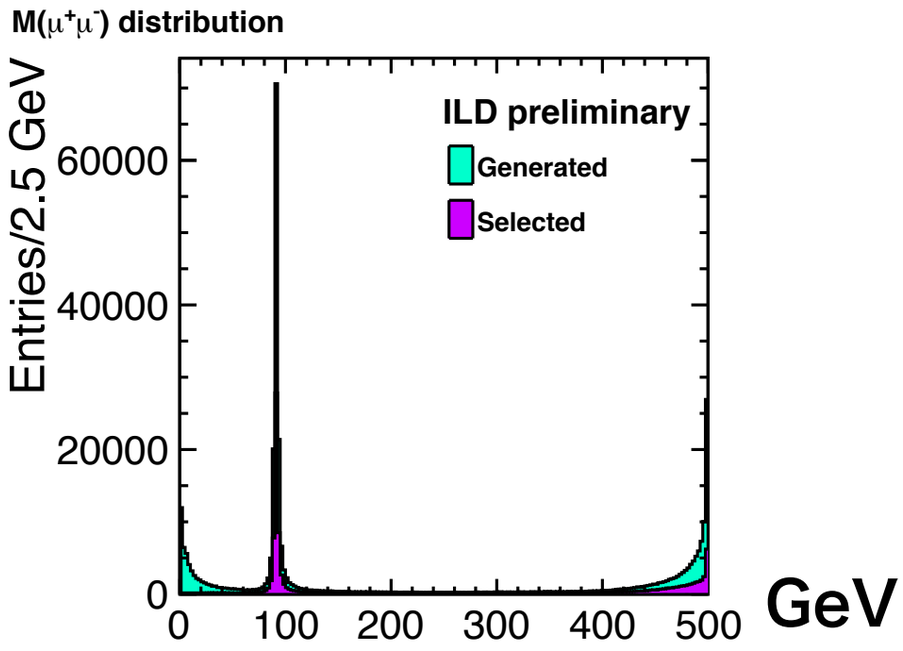
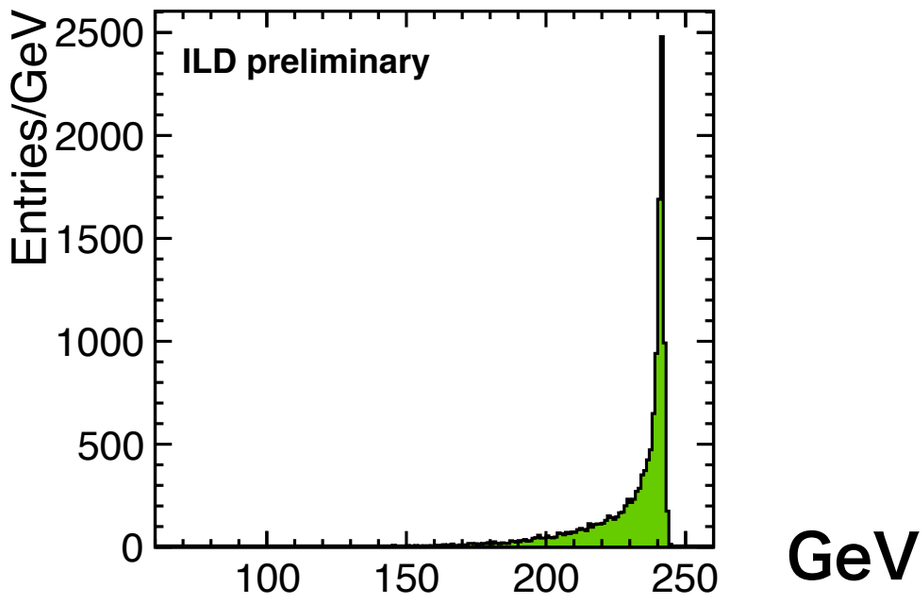
- **I received 4 questions about my research.**
- **The reason why invariant mass cut is imposed in photon energy scale calibration**



M(μ⁺μ⁻) ~ 500 GeV M(μ⁺μ⁻) ~ 91.2 GeV M(μ⁺μ⁻) ~ 0 GeV





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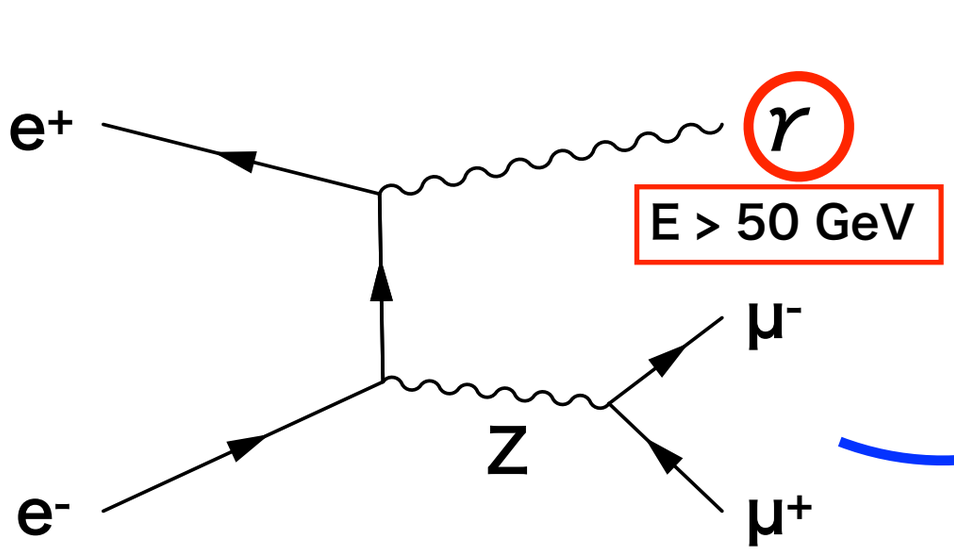
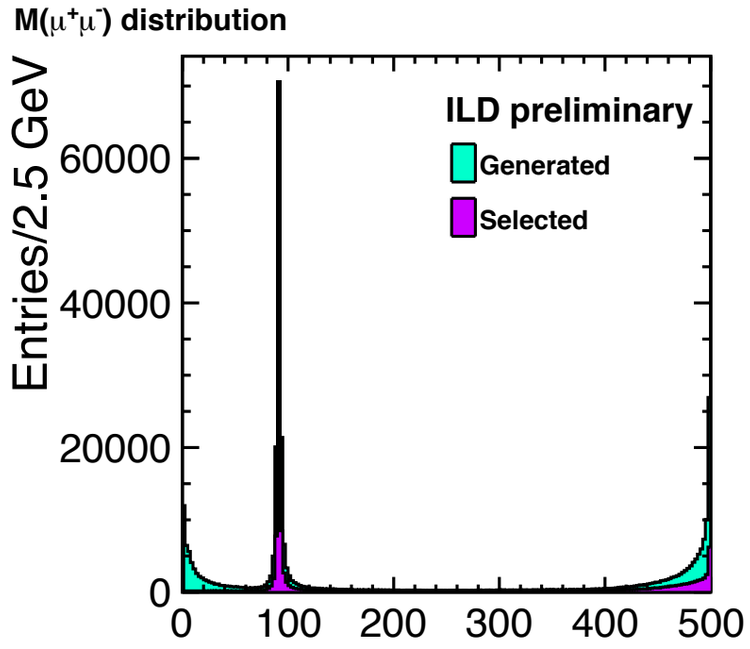
- **Possibility of another constraint to reconstruct Eγ**

$$\begin{cases} E_\mu + E_{\mu^+} + E_\gamma + |P_{ISR}| = 500 \\ E_\mu sin\theta_\mu cos\phi_\mu + E_{\mu^+} sin\theta_{\mu^+} cos\phi_{\mu^+} + E_\gamma sin\theta_\gamma cos\phi_\gamma + |P_{ISR}| sin\alpha = 500 sin\alpha \\ E_\mu sin\theta_\mu sin\phi_\mu + E_{\mu^+} sin\theta_{\mu^+} sin\phi_{\mu^+} + E_\gamma sin\theta_\gamma sin\phi_\gamma = 0 \\ E_\mu cos\theta_\mu + E_{\mu^+} cos\theta_{\mu^+} + E_\gamma cos\theta_\gamma \pm |P_{ISR}| cos\alpha = 0 \end{cases}$$



Direction Angle
θ : polar angle
ϕ : azimuthal angle

Add $M(\mu^+\mu^-)$=91.2 ??



Thank you for your attention!