

Beam polarization effects on top-pair production

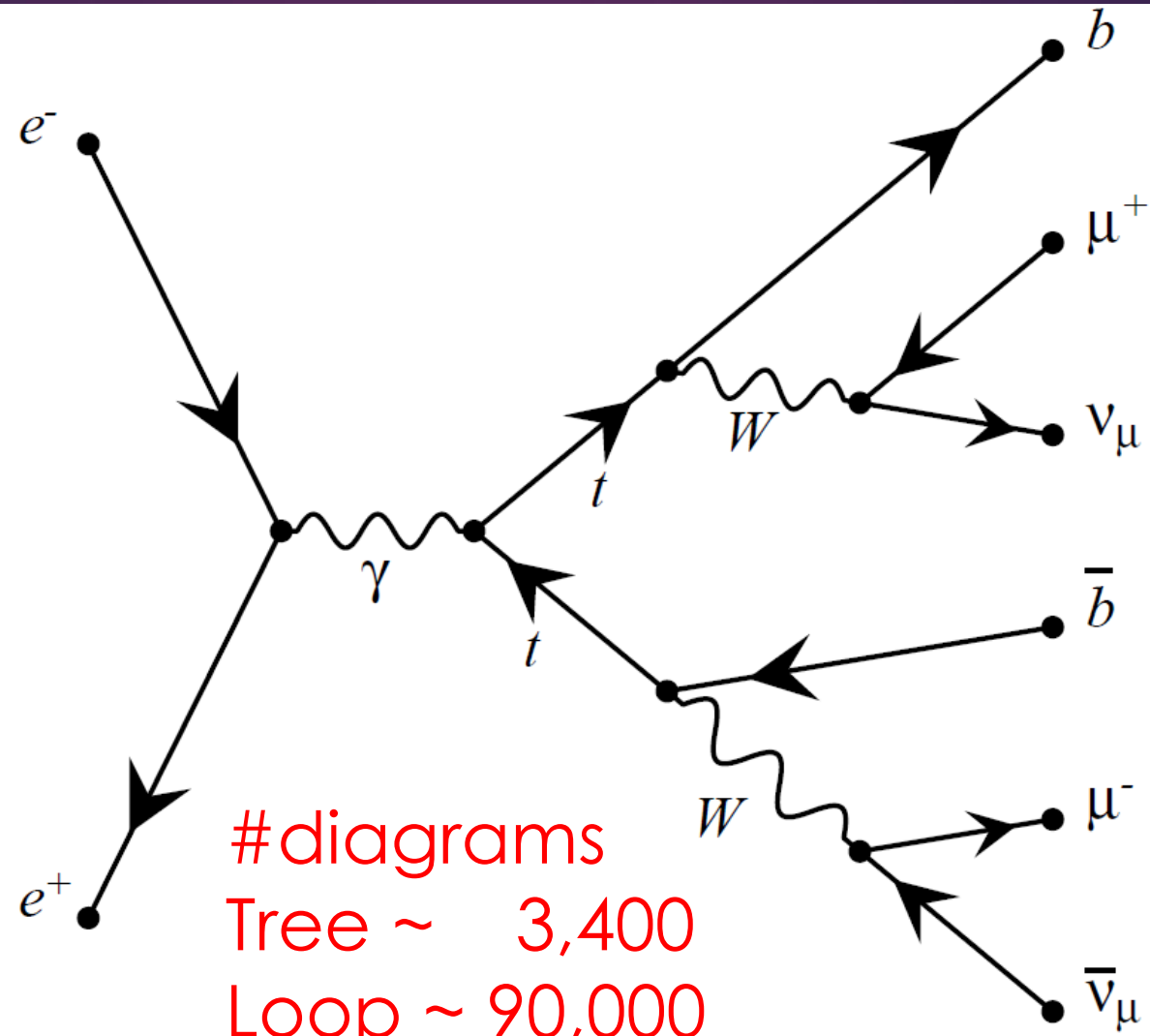
- ▶ Kurihara, Y. (KEK),
- ▶ Quach M.U. Nhi (Sokendai)
- ▶ & GRACE Group

Target:

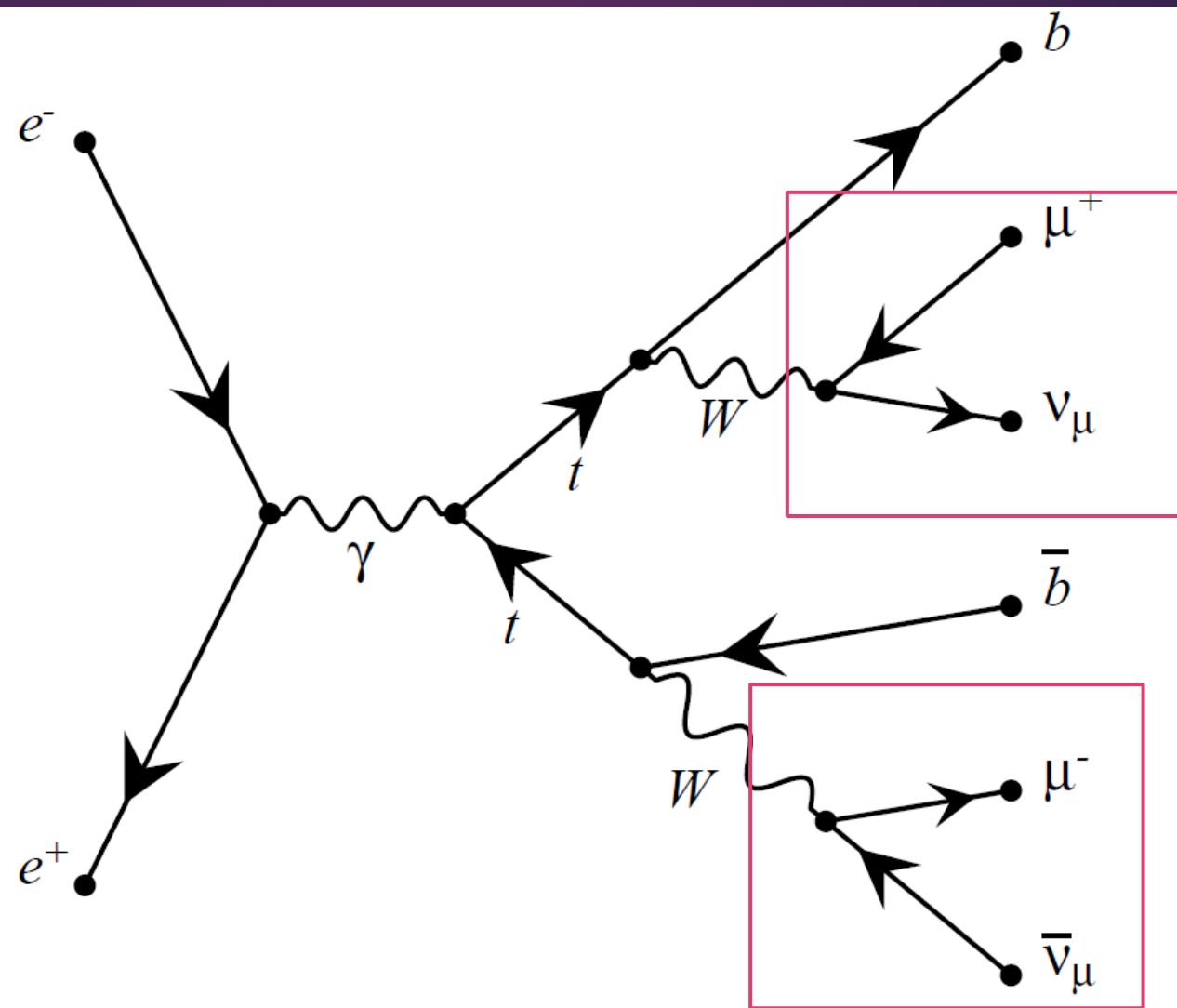
- $e^+ e^- \rightarrow t \bar{t} \rightarrow b \bar{b} f \bar{f} f \bar{f}$ @ ILC
- Full $O(\alpha)$ electroweak corrections
- Beam polarization effects
- Finite width effects of top-quarks
- Matrix elements

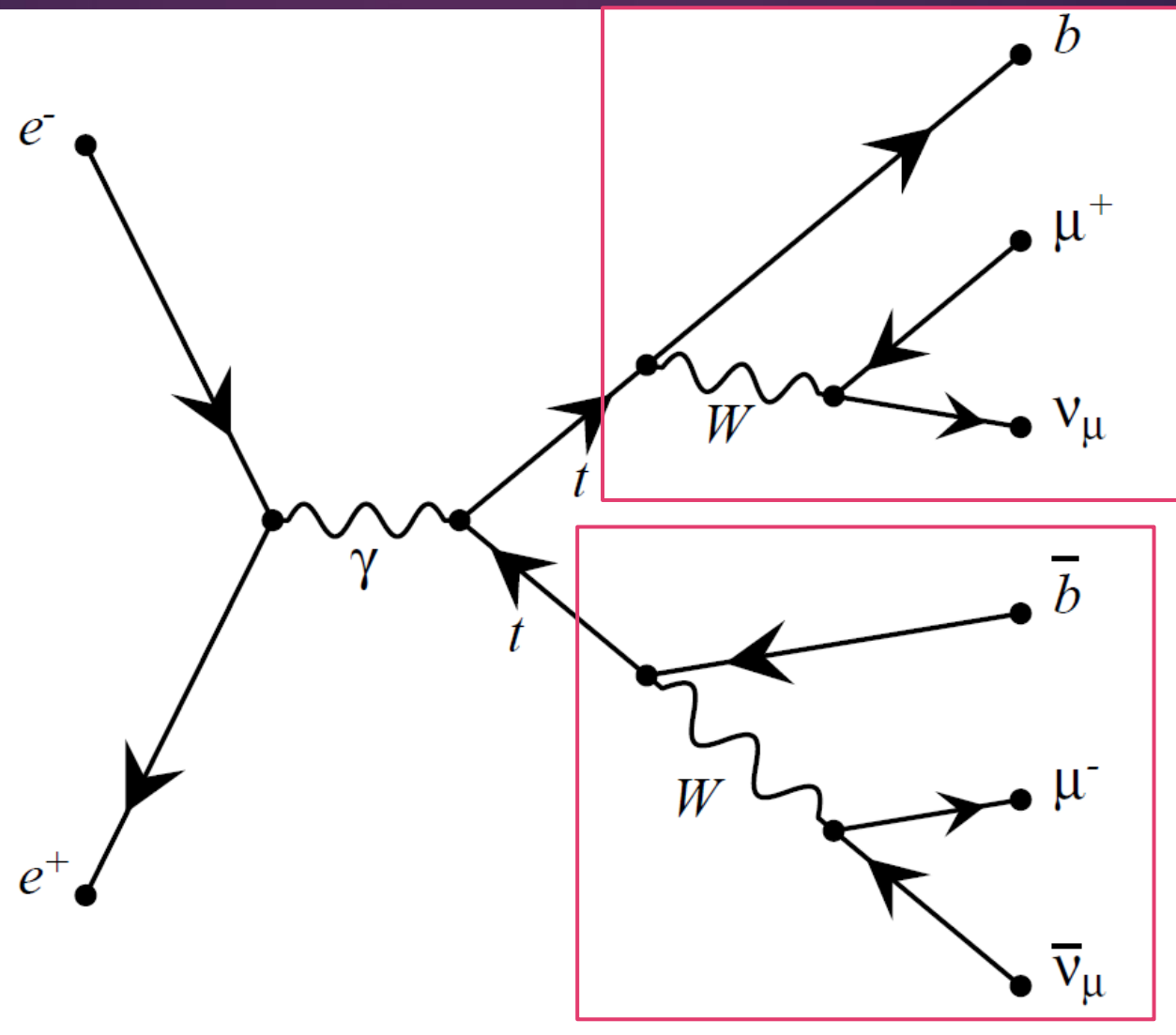
- Event generation ?
- $O(\alpha^2)$ electroweak corrections ???

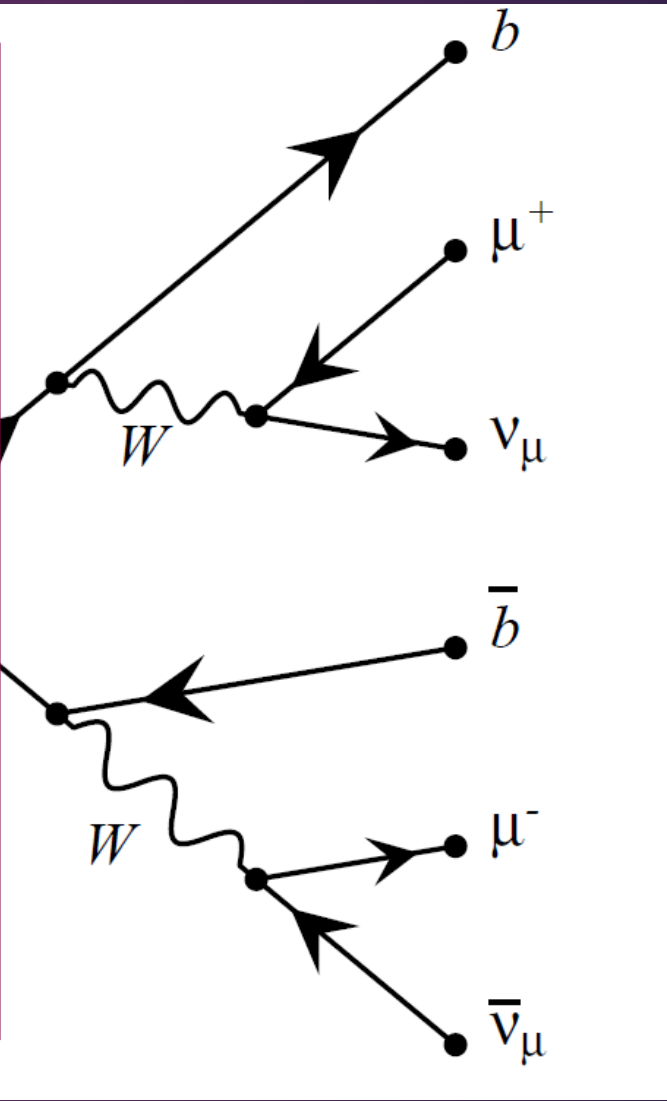
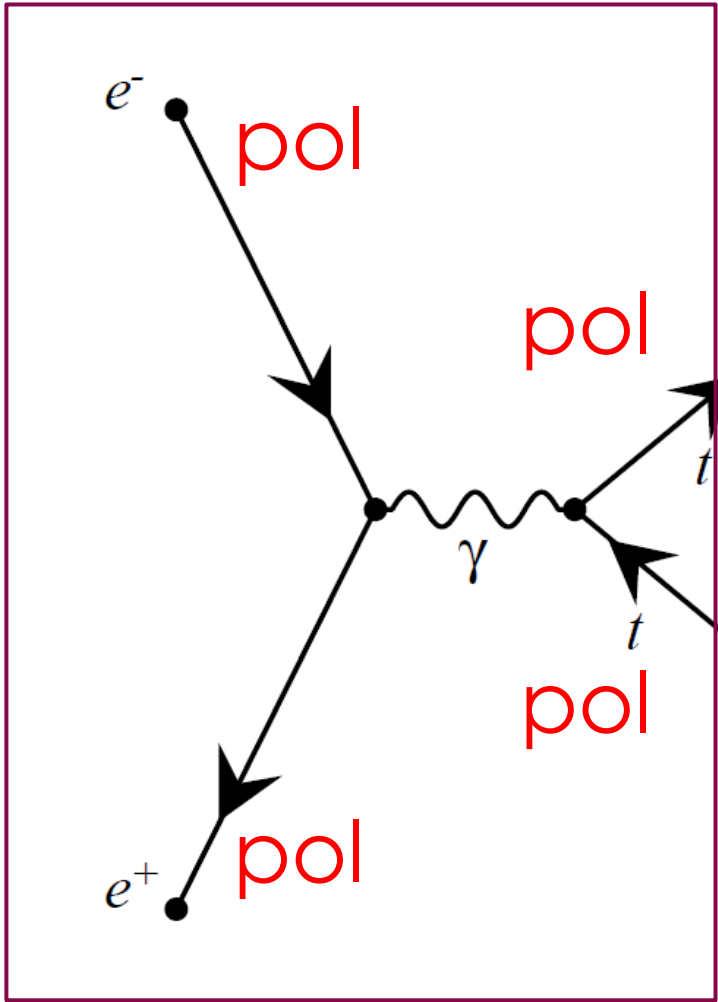
Accuracy goal $<1\%$



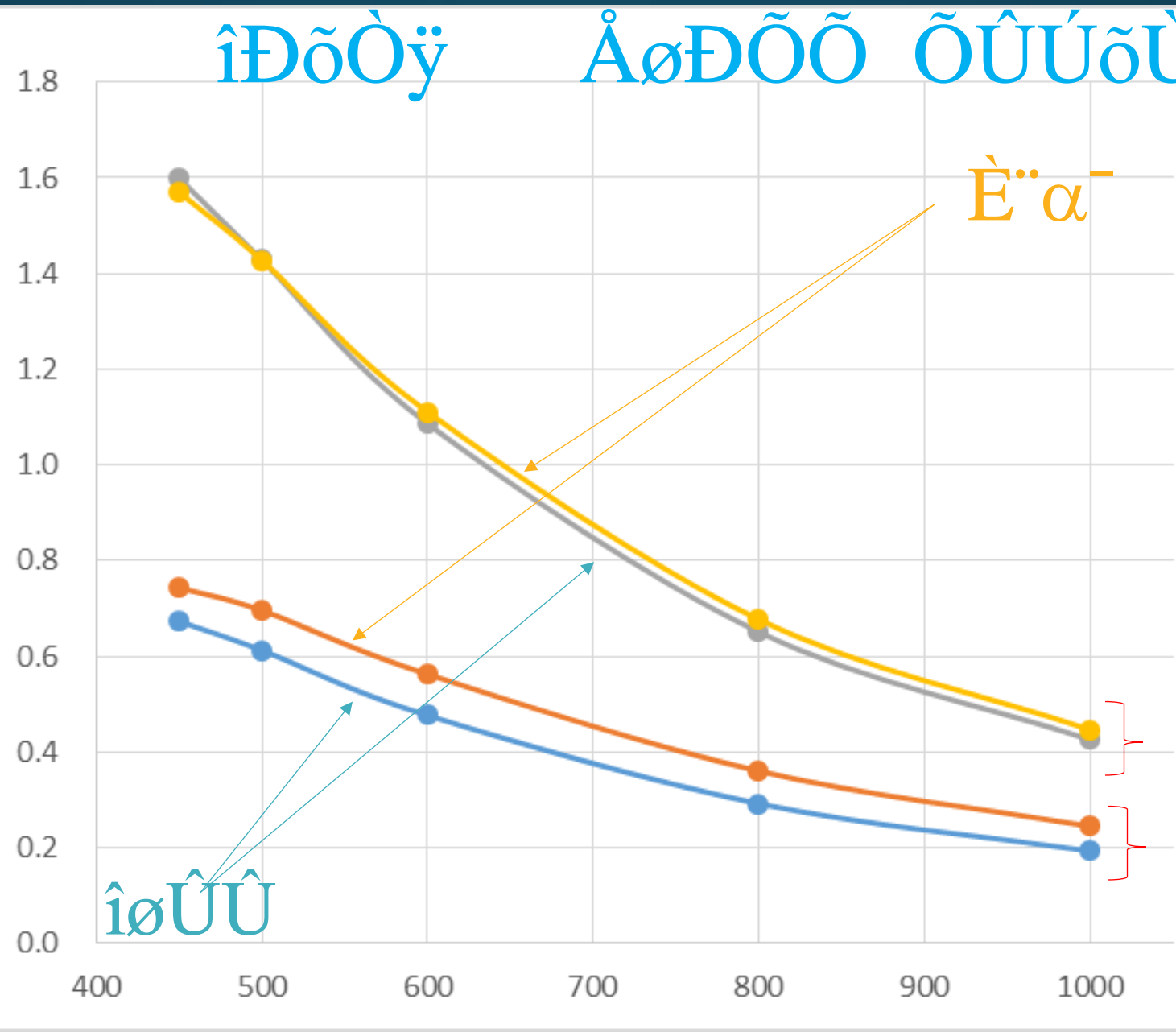
#diagrams
Tree ~ 3,400
Loop ~ 90,000







$\sigma_{\text{đò}}$



iD_0y

A_0D_0O

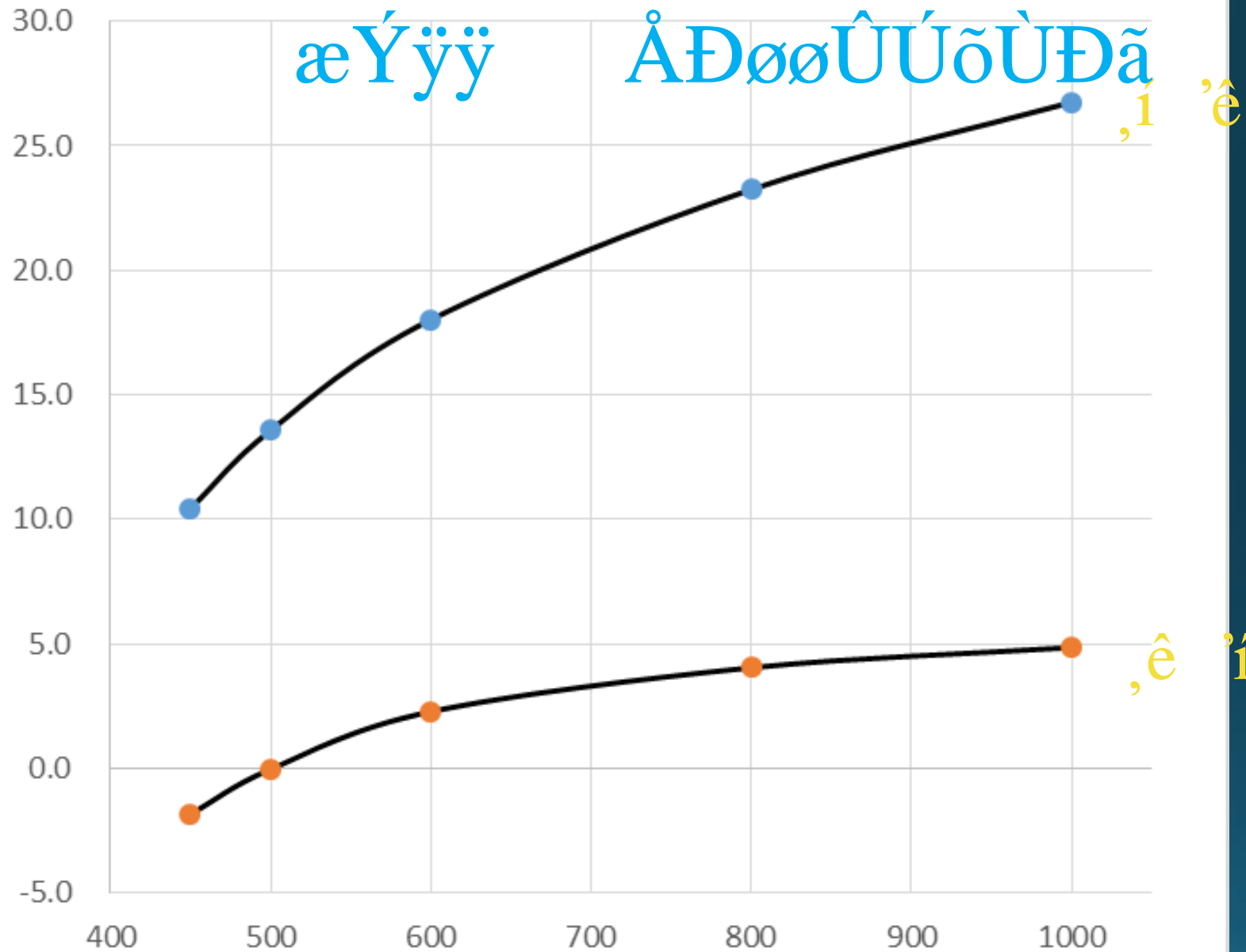
$E \alpha$

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$\sqrt{\omega}$

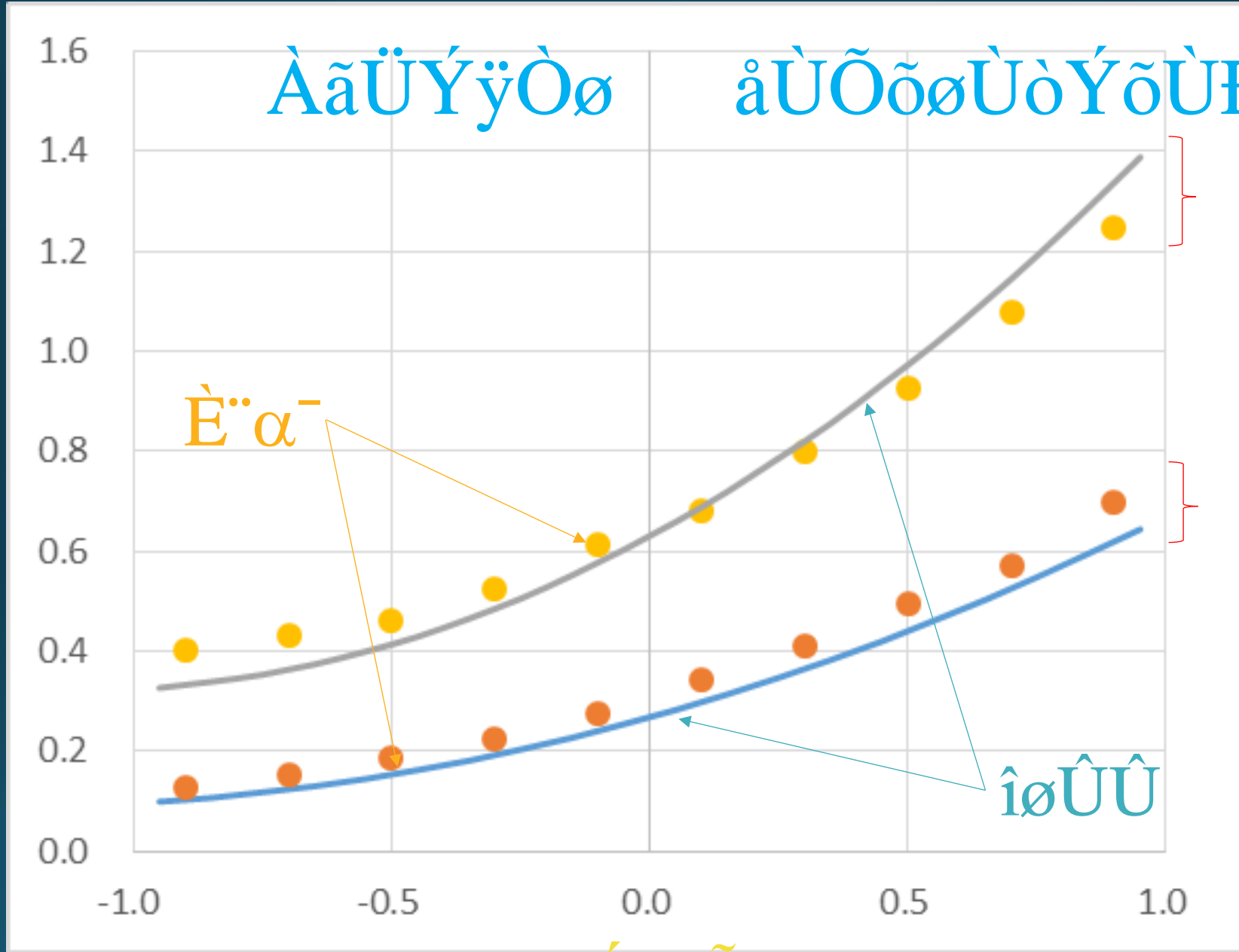
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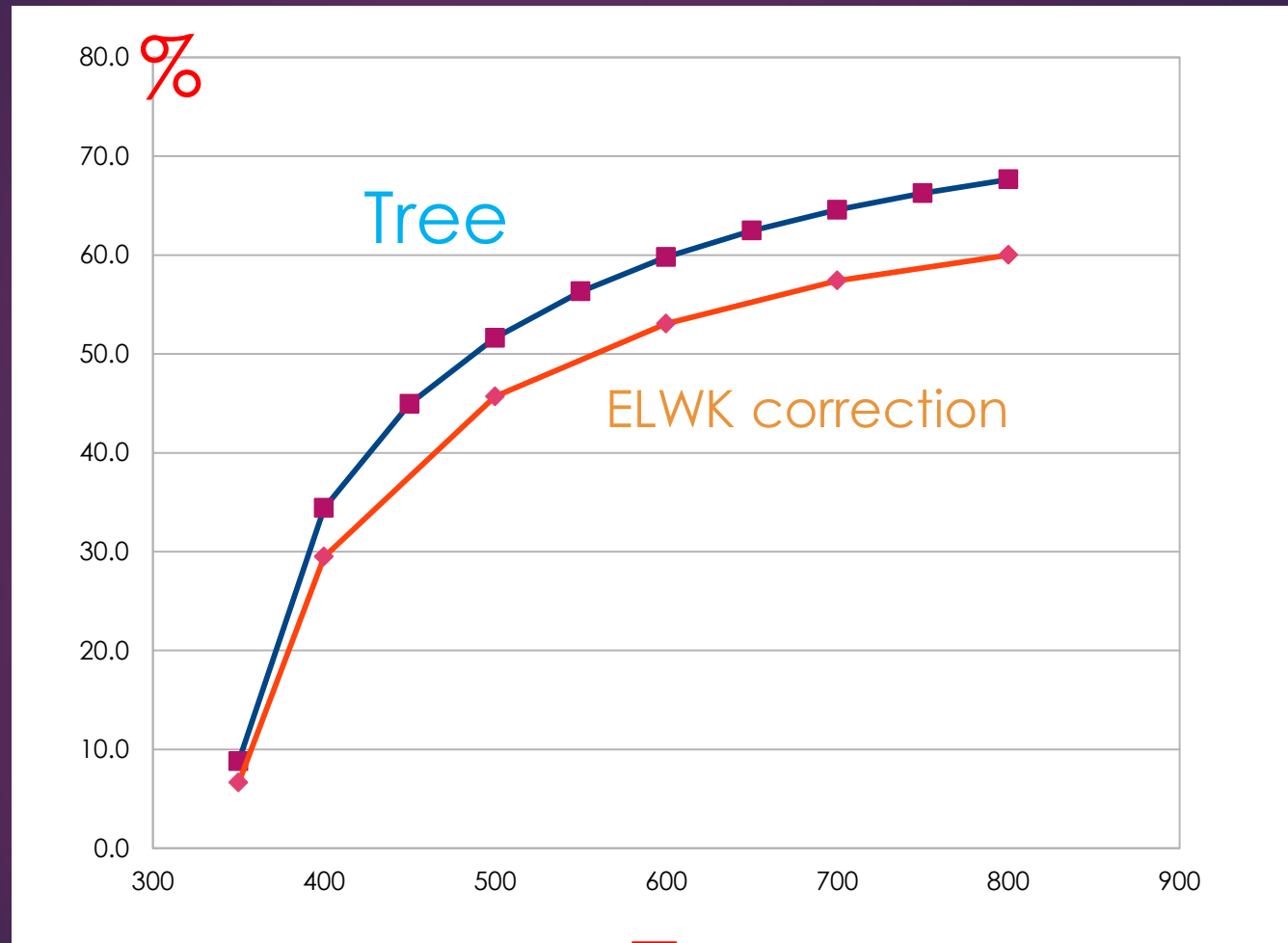
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ÚĐÕθ

$$e_L^- e_R^+ \rightarrow \text{top top}$$

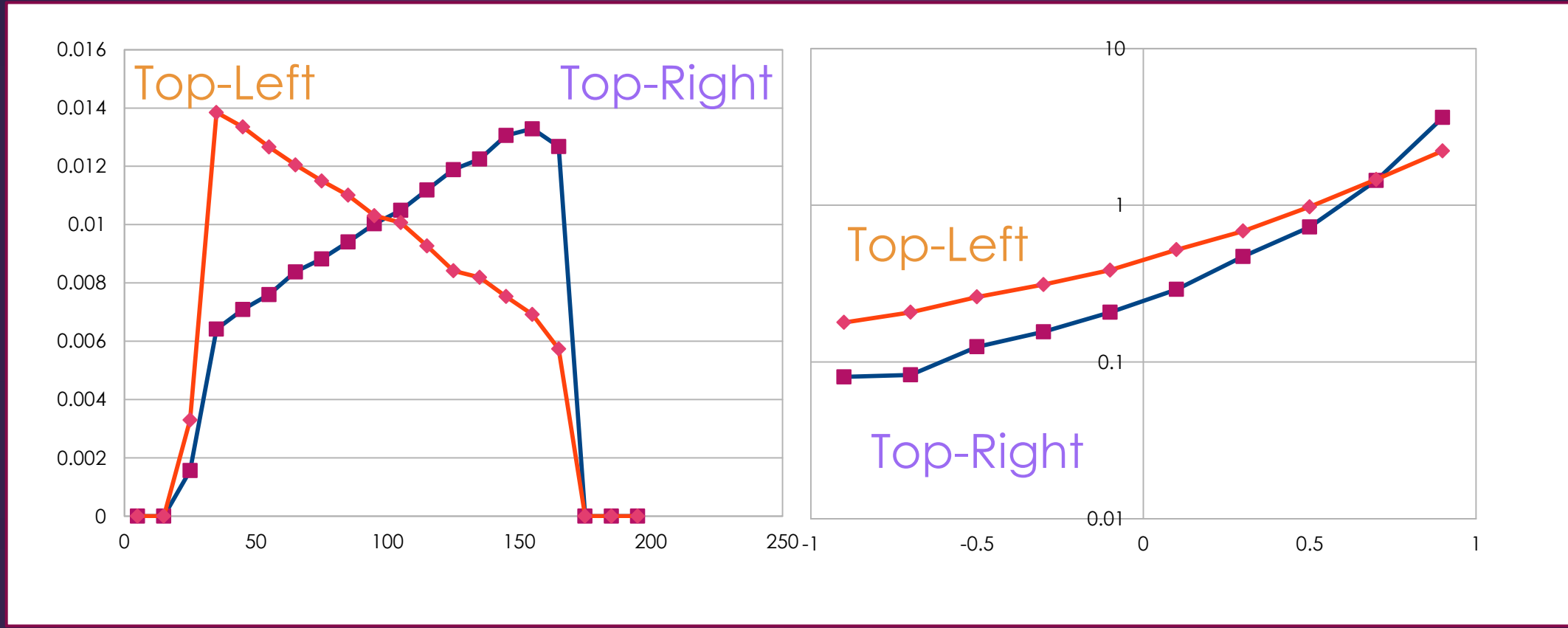
Top polarization



\sqrt{S}

$\sqrt{s}=500\text{GeV}$

$e^-_L e^+_R \rightarrow \text{top top}$



E_b (Lab.) GeV

$\cos\theta_{tb}$

Future

- Decay Loop
- Decay-Loop connection
- Effects of a top-width
- Higher order estimation
 - Theoretical uncertainty

