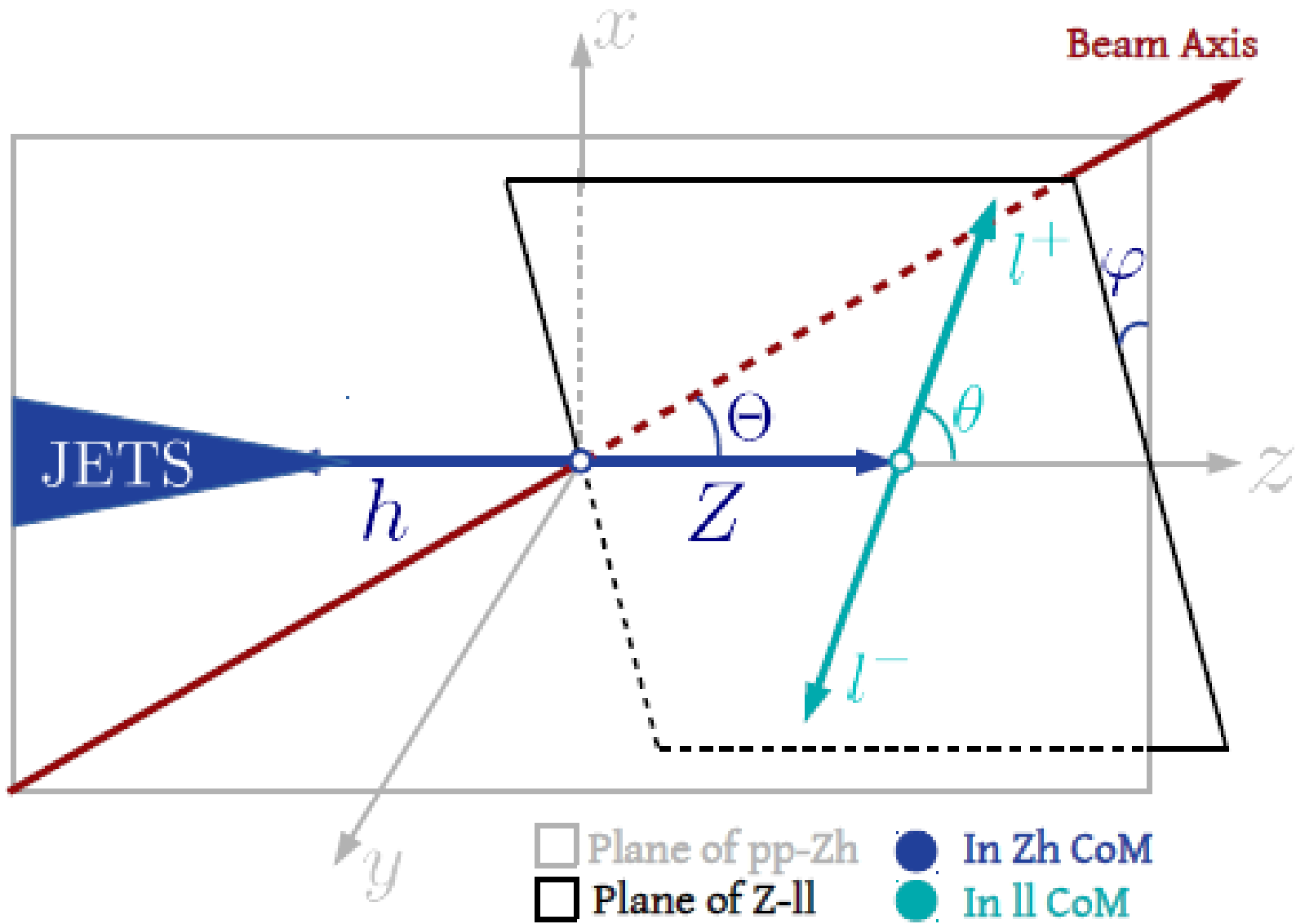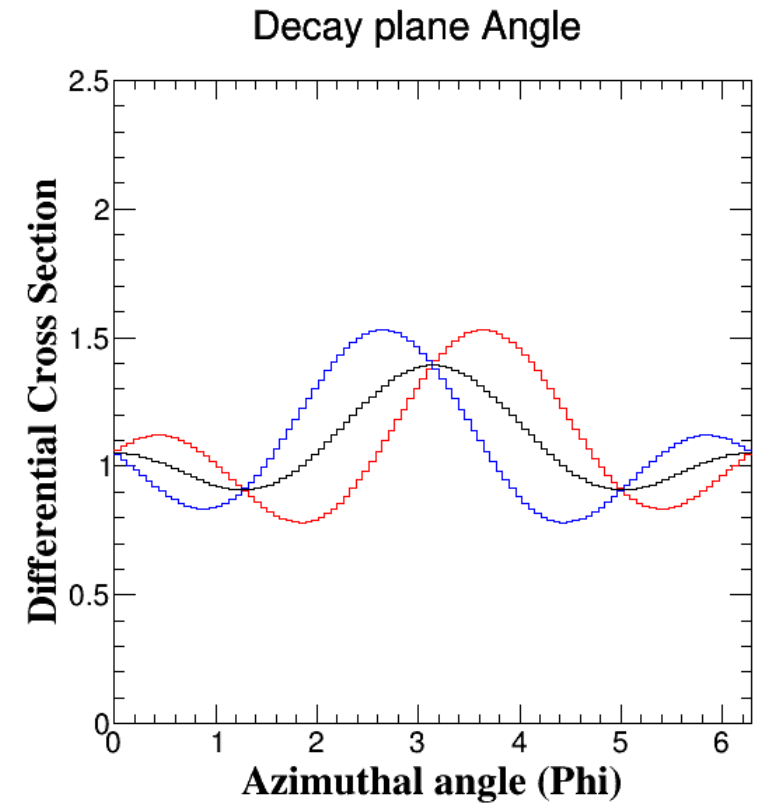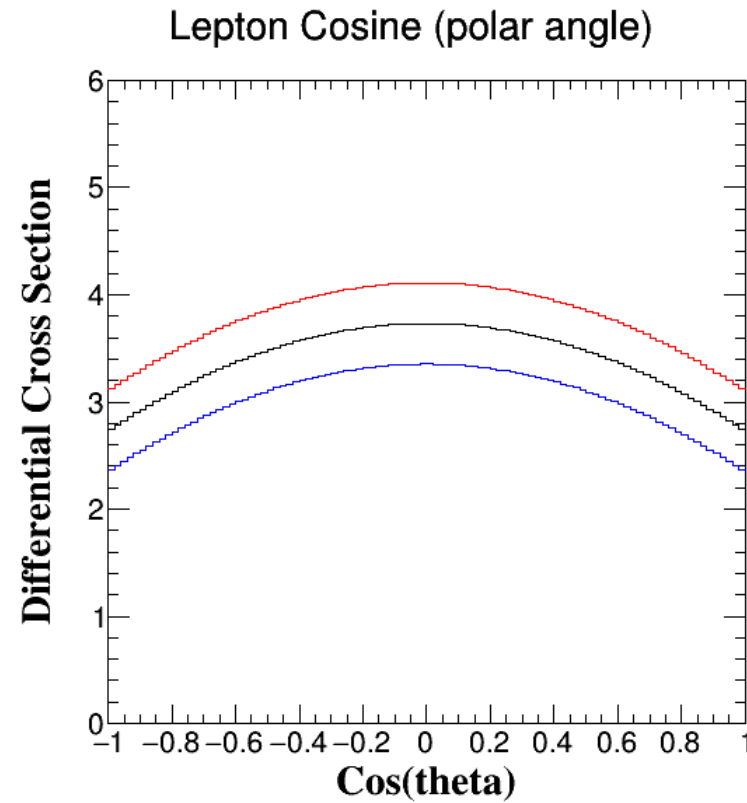# Recent status of HZZ EFT study

10/03/2019

Beam Axis

x

l^+

φ

Θ

θ

z

JETS

h

Z

l^-

y

☐ Plane of pp-Zh   ● In Zh CoM
■ Plane of Z-ll   ● In ll CoM

Z boson Cosine (polar angle)

Lepton Cosine (polar angle)

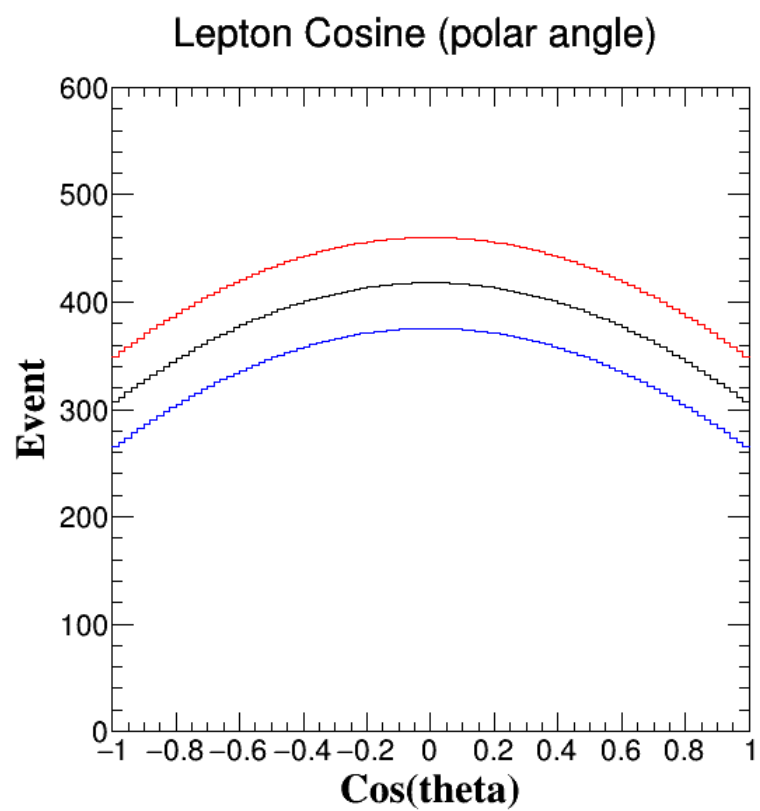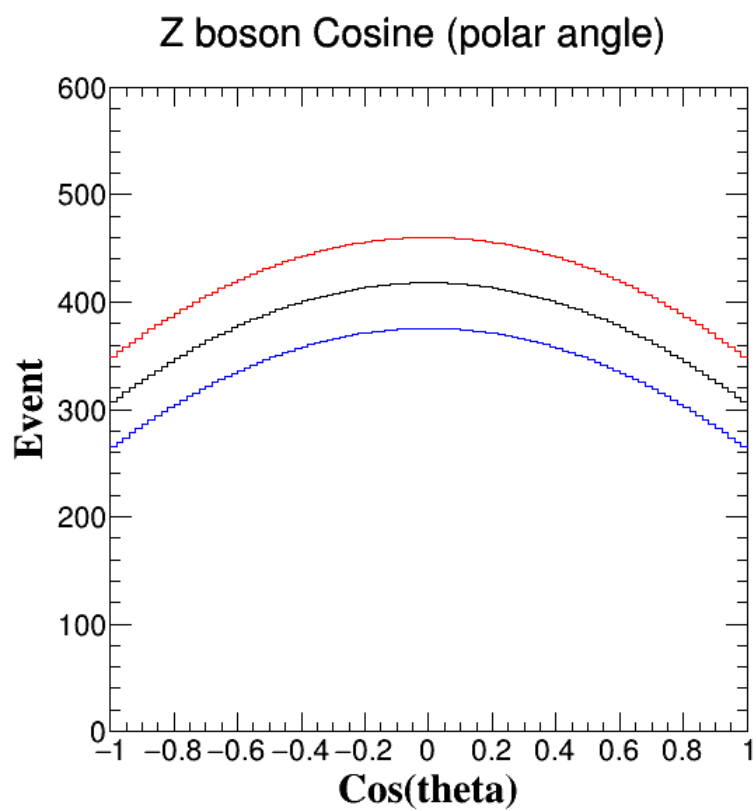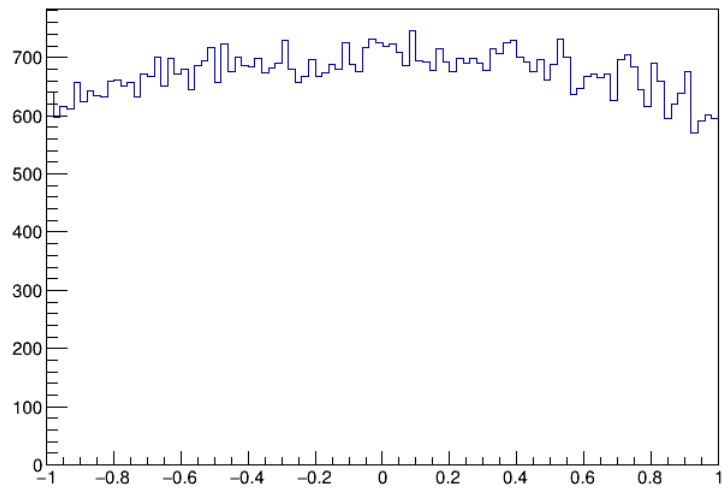**Decay plane Angle**
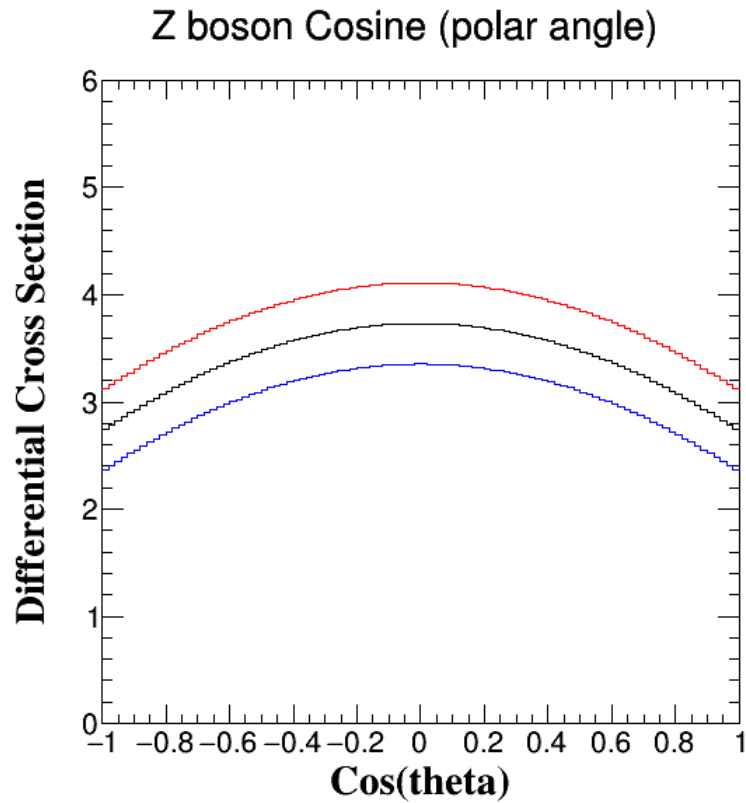
The total cross section is normalized with the value what we used. That's would be one of further investigation

Z boson Cosine (polar angle)
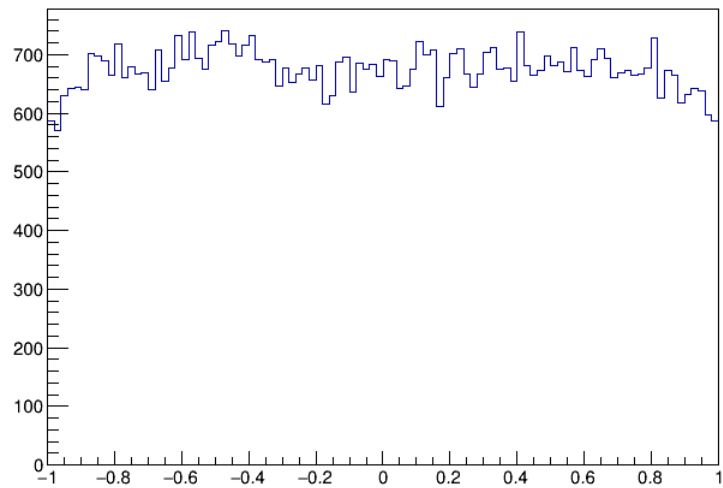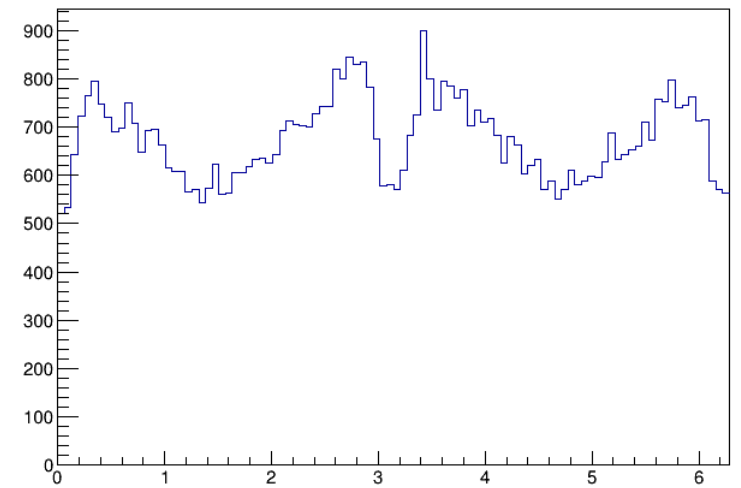
Lepton Cosine (polar angle)

Decay plane Angle
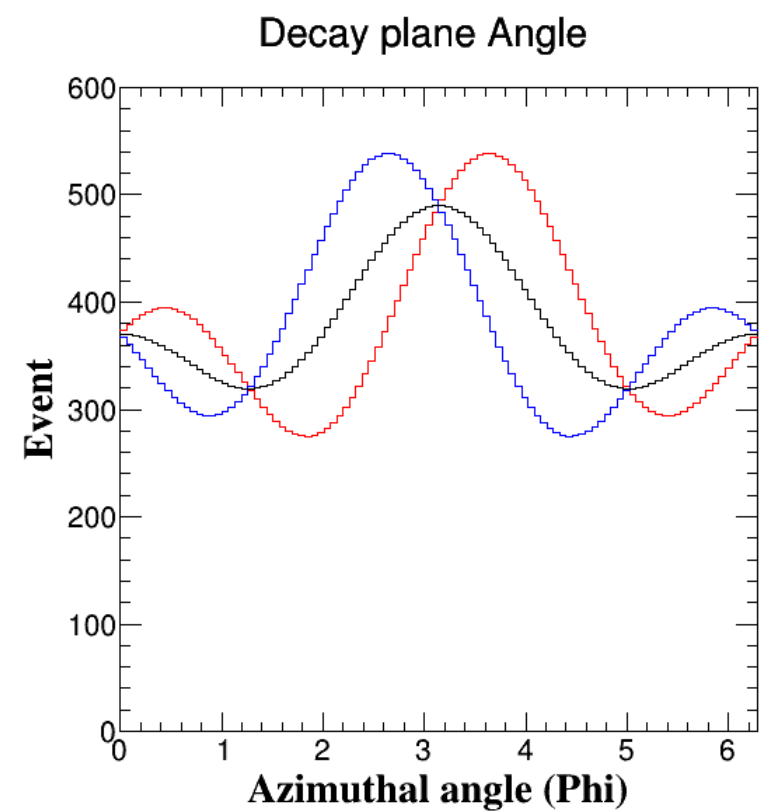
Angle dependence (for CEPC MC samples)

Angle dependence（after all of "vvjj"cuts）
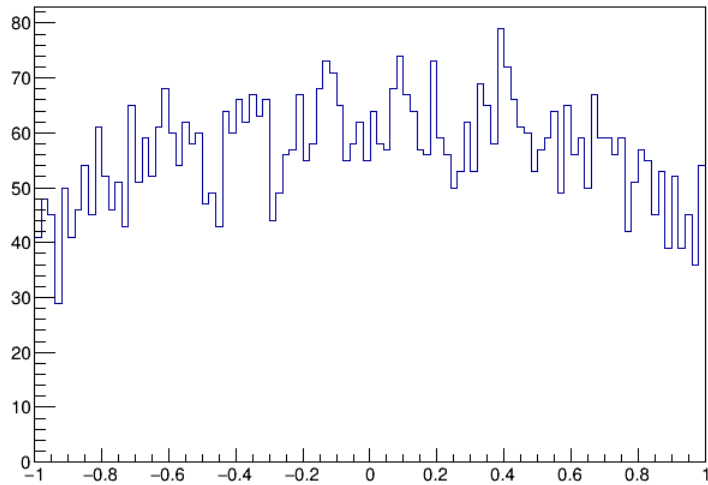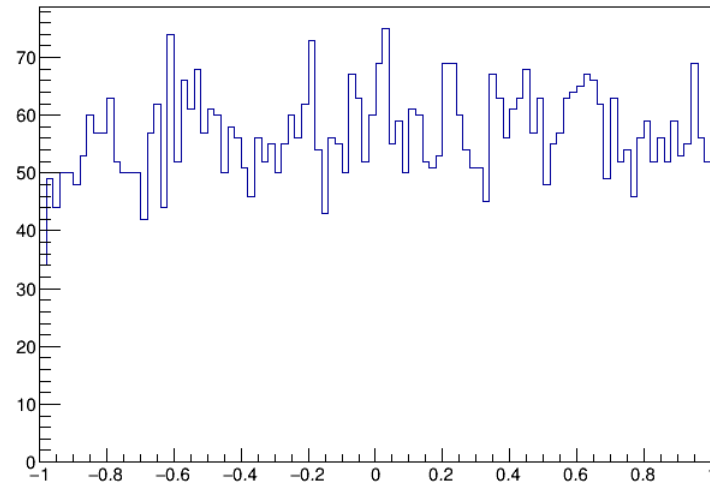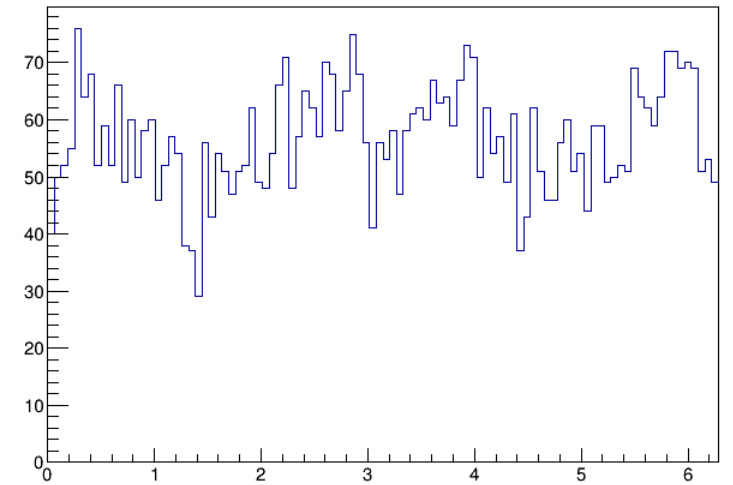
no scaling . ~ 1/10 ?

Constraining anomalous HVV interactions at proton and lepton colliders

Ian Anderson,[1] Sara Bolognesi,[1] Fabrizio Caola,[1] Yanyan Gao,[2] Andrei V. Gritsan,[1] Christopher B. Martin,[1] Kirill Melnikov,[1] Markus Schulze,[3] Nhan V. Tran,[2] Andrew Whitbeck,[1] and Yaofu Zhou[1]

[1]*Department of Physics and Astronomy, Johns Hopkins University, Baltimore, MD 21218, USA*
[2]*Fermi National Accelerator Laboratory (FNAL), Batavia, IL 60510, USA*
[3]*Argonne National Laboratory (ANL), Lemont, IL 60439, USA*
(Dated: September 19, 2013)
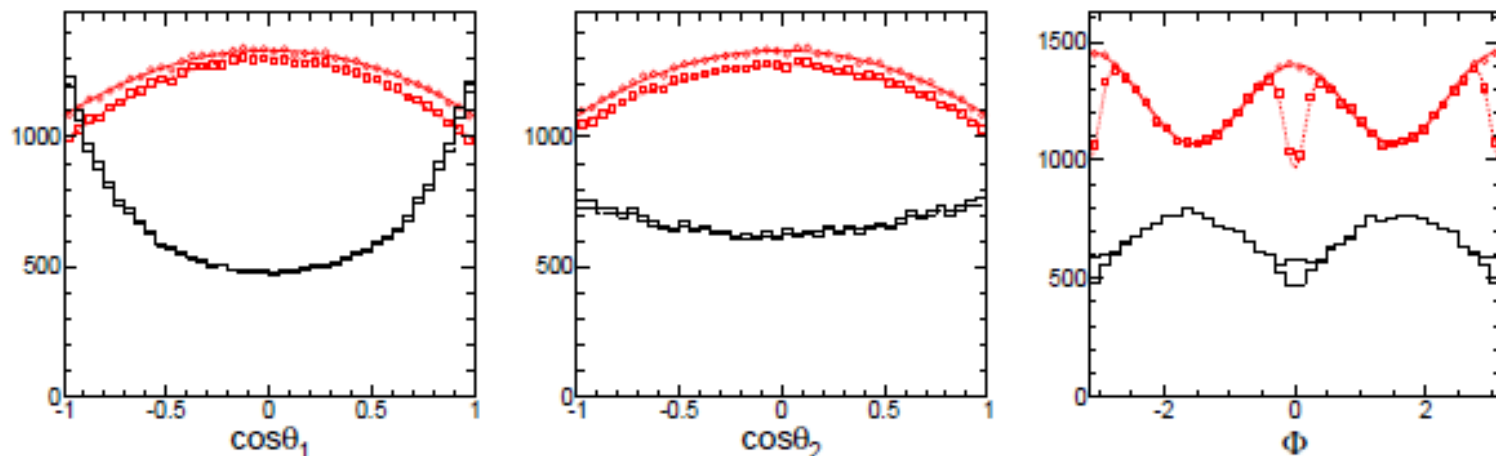

FIG. 25: Distributions of the observables in the $e^+e^- \to ZH$ analysis at $\sqrt{s} = 250$ GeV, from left to right: $\cos\theta_1$, $\cos\theta_2$, and Φ. Points (red) show simulated events for the SM Higgs boson with curves showing projections of analytical distributions. Histograms (black) show background distributions. Distributions before (solid) and after (dashed) detector acceptance effects are shown.

Next (for this issue)

-- Adjust the scaling

-- Try to apply the algorithm on the vertex (H->ZZ*)

-- Think about if this topic can explore some parameter space

-- Consider about the detector acceptance

Items

-- Start to write the CEPC memo

    -- results we have so far

    -- we can update during or after the first version

-- Studies

    -- signal fitting / combination

    -- daltz plot

    -- EFT