

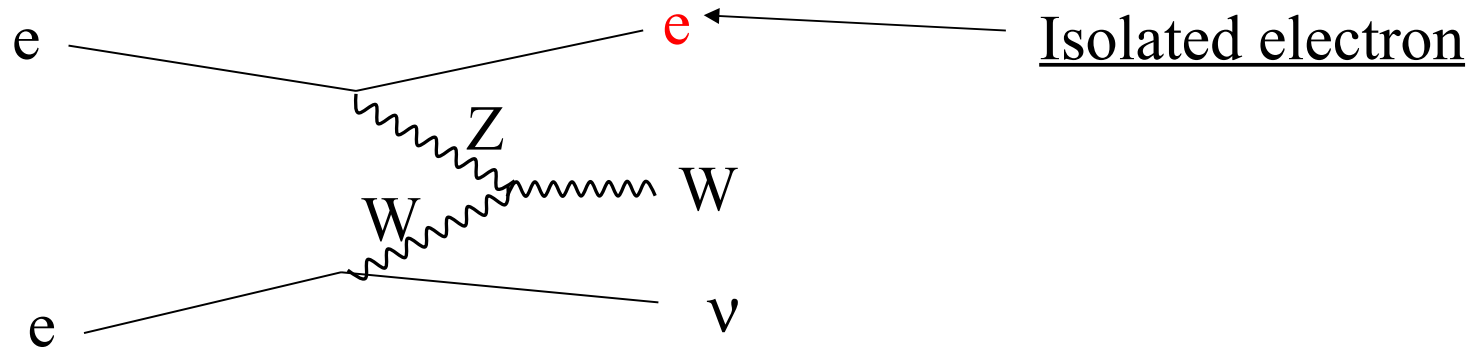
# Dark matter search in higgs portal scenario

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# status

To suppress the  $e\nu W$  background, add the new cut parameter “ $C_{\text{ose}}$ ” in analysis, it means the angle of isolated electron. This parameter has to be checked by forward detector information, but there is not the forward detector in Quick-Sim. So I use the generator information for “ $C_{\text{ose}}$ ”.

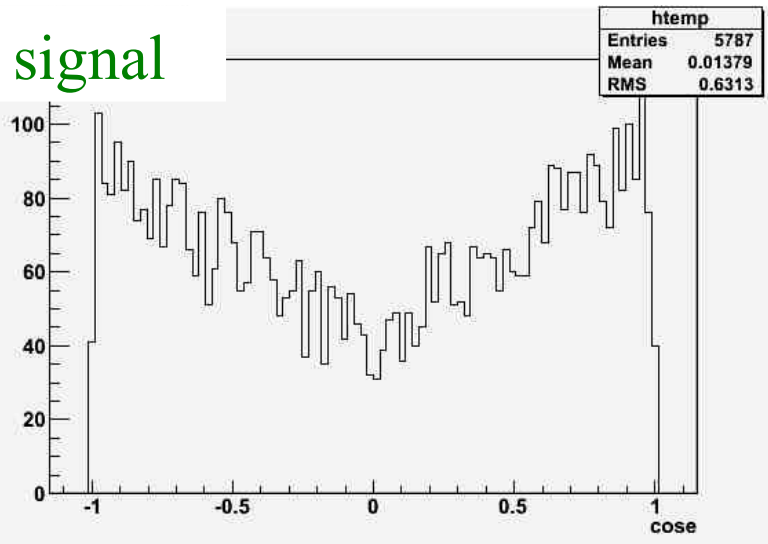


- Checked dark-matter mass : 50GeV
- $E_{\text{cm}}$  : 300 GeV
- Beam polarization : electron +0.8, positron -0.3

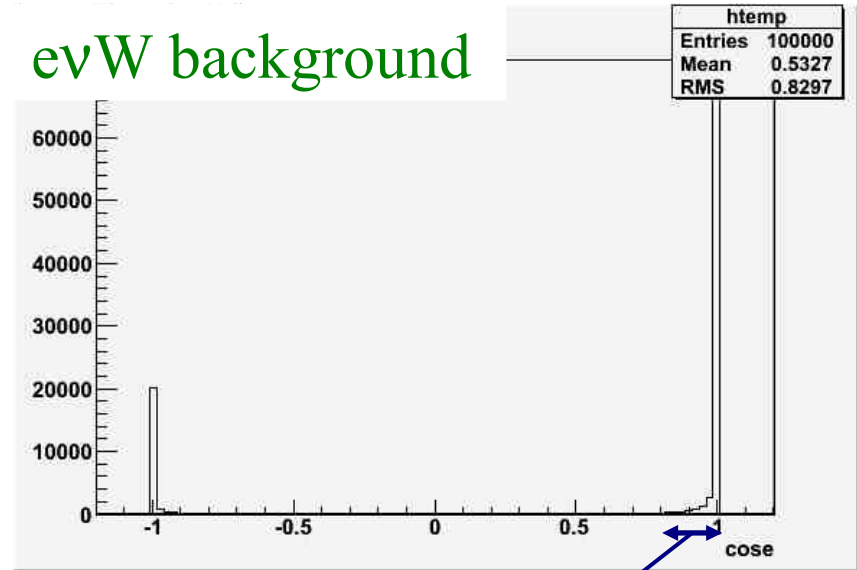
# Cose : Isolated electron angle

Check the Cose distribution and consider cut value

signal



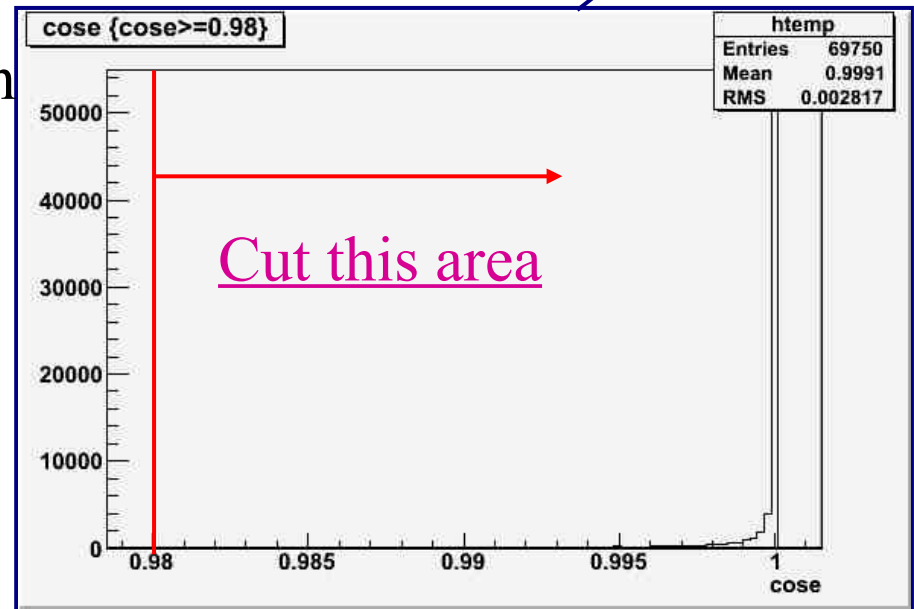
evW background



The time projection chamber design  
solid angle coverage :  $\text{Cos}\theta \sim 0.98$



Event selection  
 $|\text{Cose}| < 0.98$



# Reduction table

The cut base analysis was performed.

Cut parameters are the mass of Z, the angle of Z and Cose

Set the signal region is 115 to 150 GeV

	Non cut	Zmass 83~100	CosZ -0.72~0.72	Cose -0.98~0.98
Signal	3021	2642	2182	2181
evW	161969	16915	7445	1676

This number is previous analysis result

About fourth of previous result

The Cose cut was successful

# Summary & plan

## Summary

- The new parameter “Cose” was successful to suppress the enW background.