

# Dark matter search in higgs portal scenario

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# status

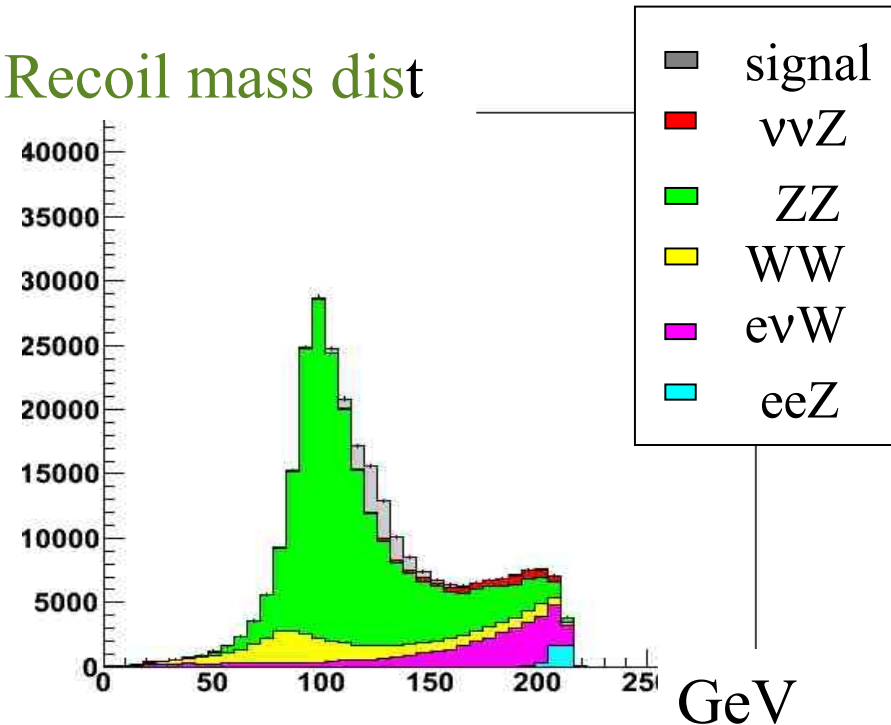
Setup the dark-matter mass at 50GeV (On Shell Higgs) and check the ILC sensitivity of higgs-dark matter coupling

To check the ILC sensitivity, the recoil mass distribution was fitted.

Fit region : 75~210 GeV

- Checked dark-matter mass : 50GeV
- Ecm : 300 GeV
- Luminosity :  $2ab^{-1}$
- Beam polarization : electron +0.8, positron -0.3
- Signal cross section : 15 fb ← about 10% of ZH coupling for clear signal

Recoil mass dist

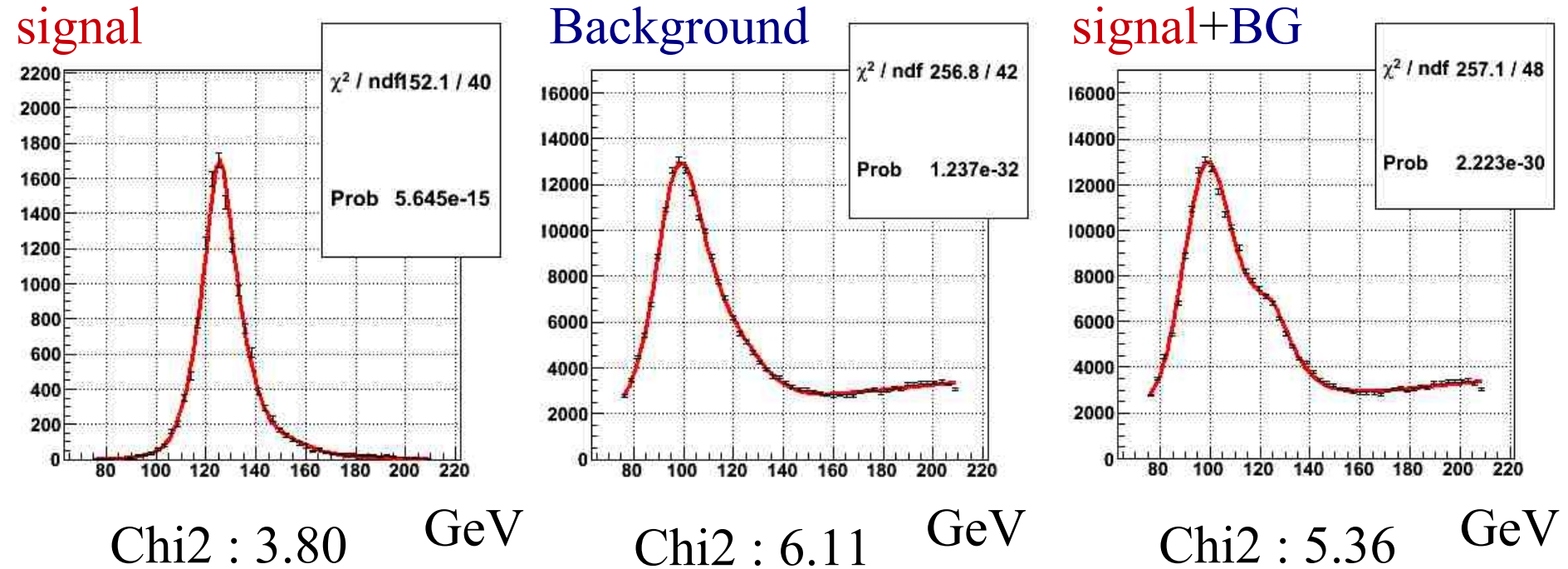


# analysis procedure

- Reconstruction of all events as 2 jets
  - Event selection
    - Z-mass cut , lepton cut, cose cut
  - likelihood analysis
    - Parameter : Z-angular ,  
Z-mass ,  
Jet angular at Z rest frame.
- Fit the recoil mass distribution

# Fit the recoil mass distribution

fit the recoil mass to get the signal event number.

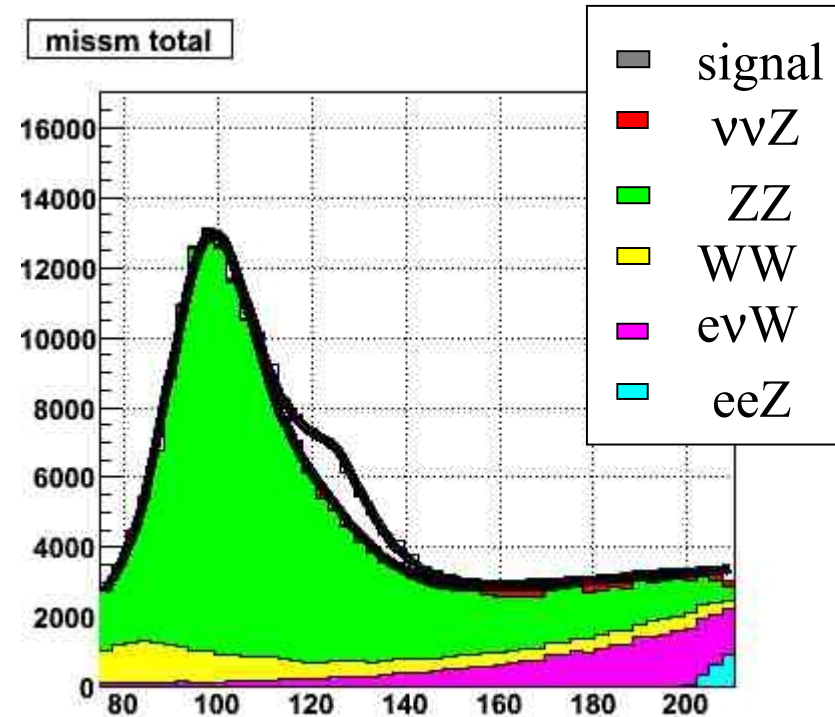


Signal cross section :  $14.5671 \pm 0.3824$   $\longrightarrow$  Error : 2.5%

# Summary & plan

## Summary

- Try to fit the recoil mass.
  - $\text{Chi}^2 : 5.36$  , error : 2.5%



- Plan  
analyze the other dark-matter mass and other dark-matter type.