Unbinned fit
in Zy boosted analysis

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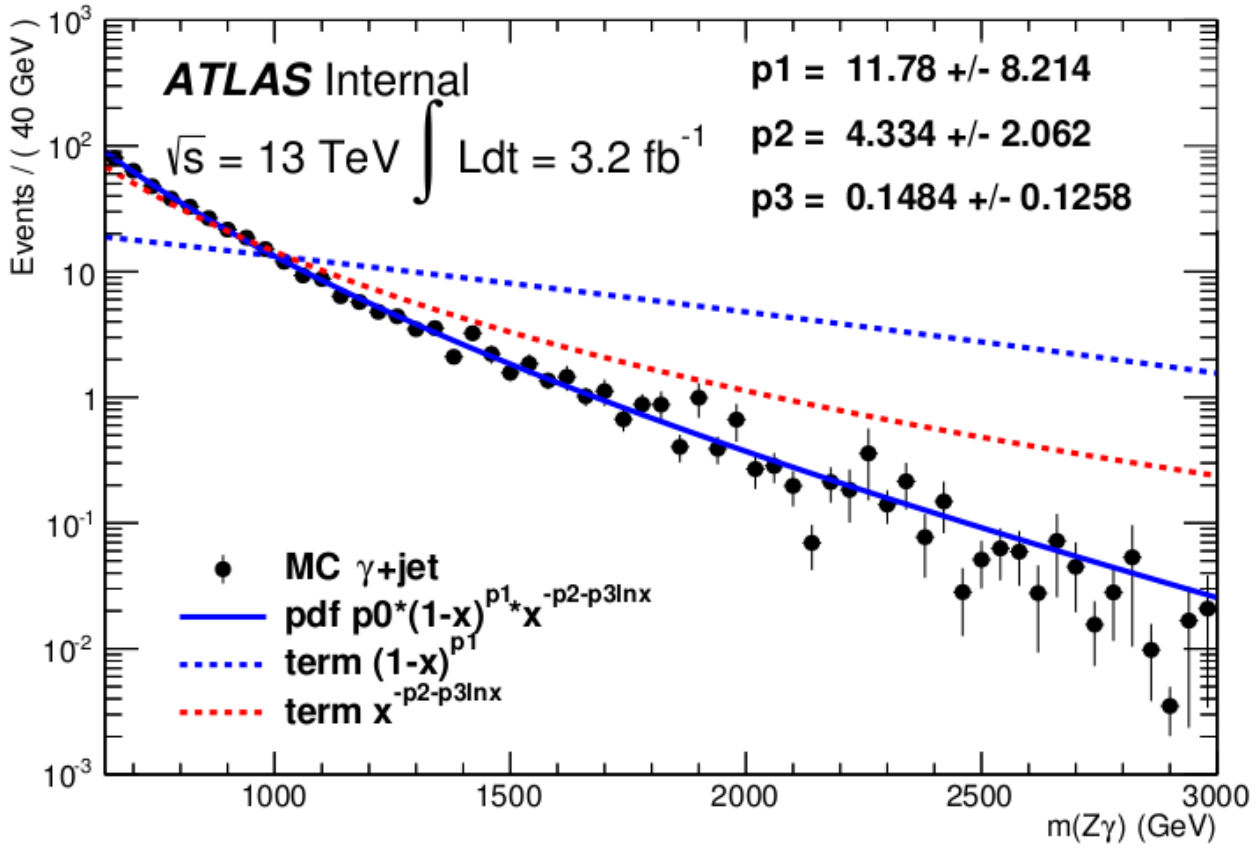
Background modeling

- Fitting background model to y+jet MC sample



$$m(x \equiv m_{\gamma,\mathrm{jet}}/\sqrt{s}) = p_0(1-x)^{p_1} x^{-p_2-p_3 \ln x}$$

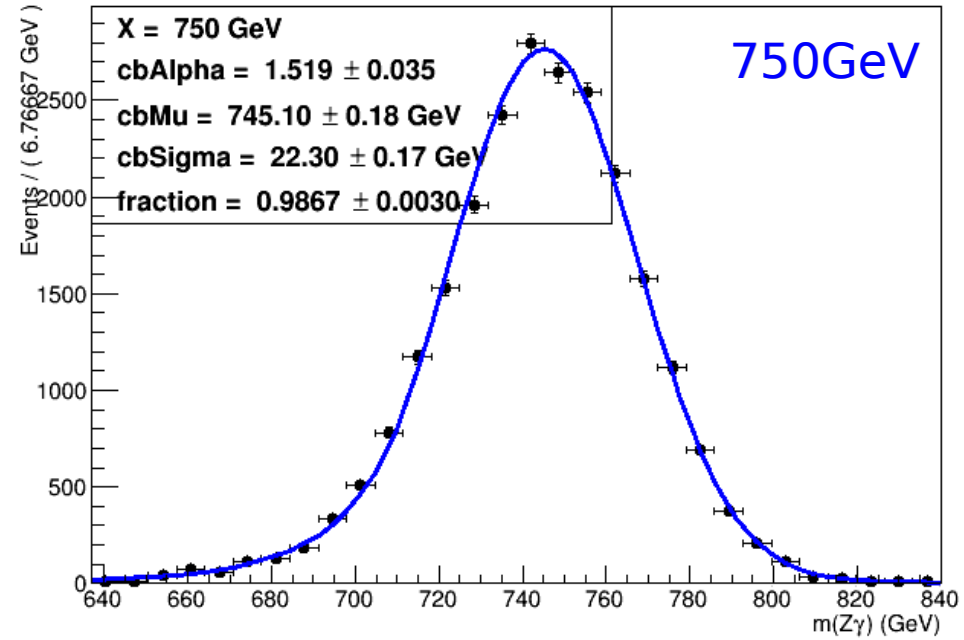
Signal modeling

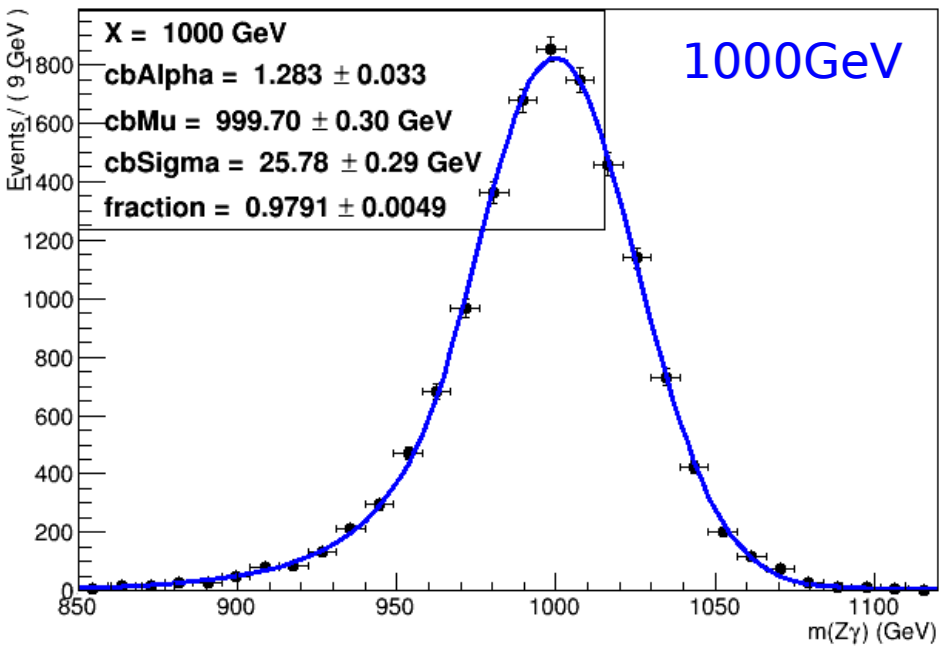
- Signal model is CB+Gauss
- Use the same mu in both CB and Gauss
- Use k as a factor to scale CB sigma to Gauss sigma

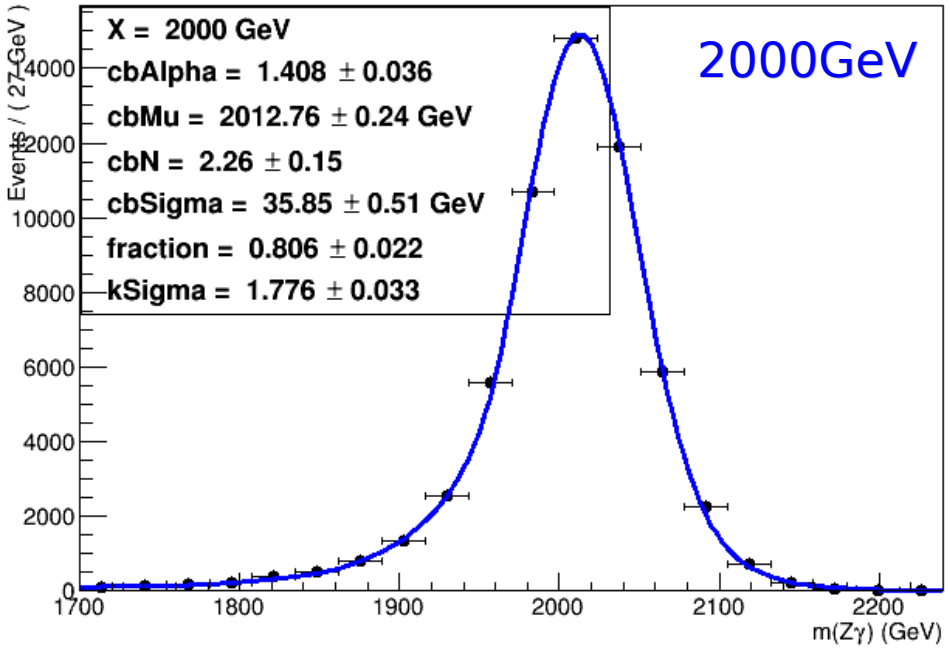
$$f(m(\gamma J)) = f_{CB} CB(m(\gamma J); \mu, \sigma_{CB}, \alpha_{CB}, N_{CB}) + (1 - f_{CB}) Gauss(m(\gamma J); \mu, k\sigma_{CB})$$

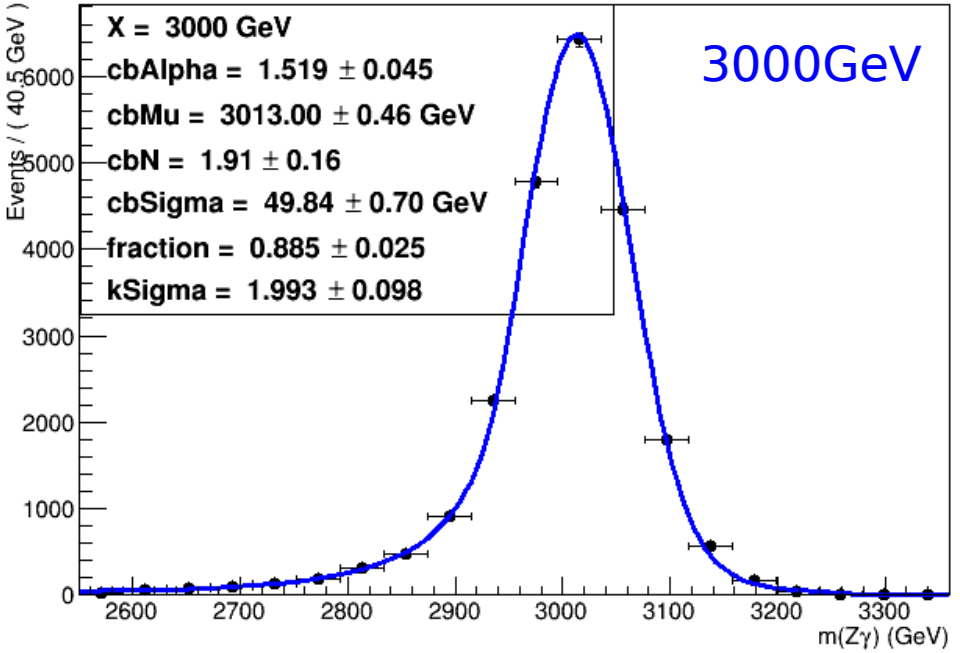
f(m(\gamma J)) = f_{CB} CB(m(\gamma J);\mu,\sigma_{CB},\alpha_{CB},N_{CB}) +(1-f_{CB})Gauss(m(\gamma J);\mu,k\sigma_{CB})

Signal model fit to MC



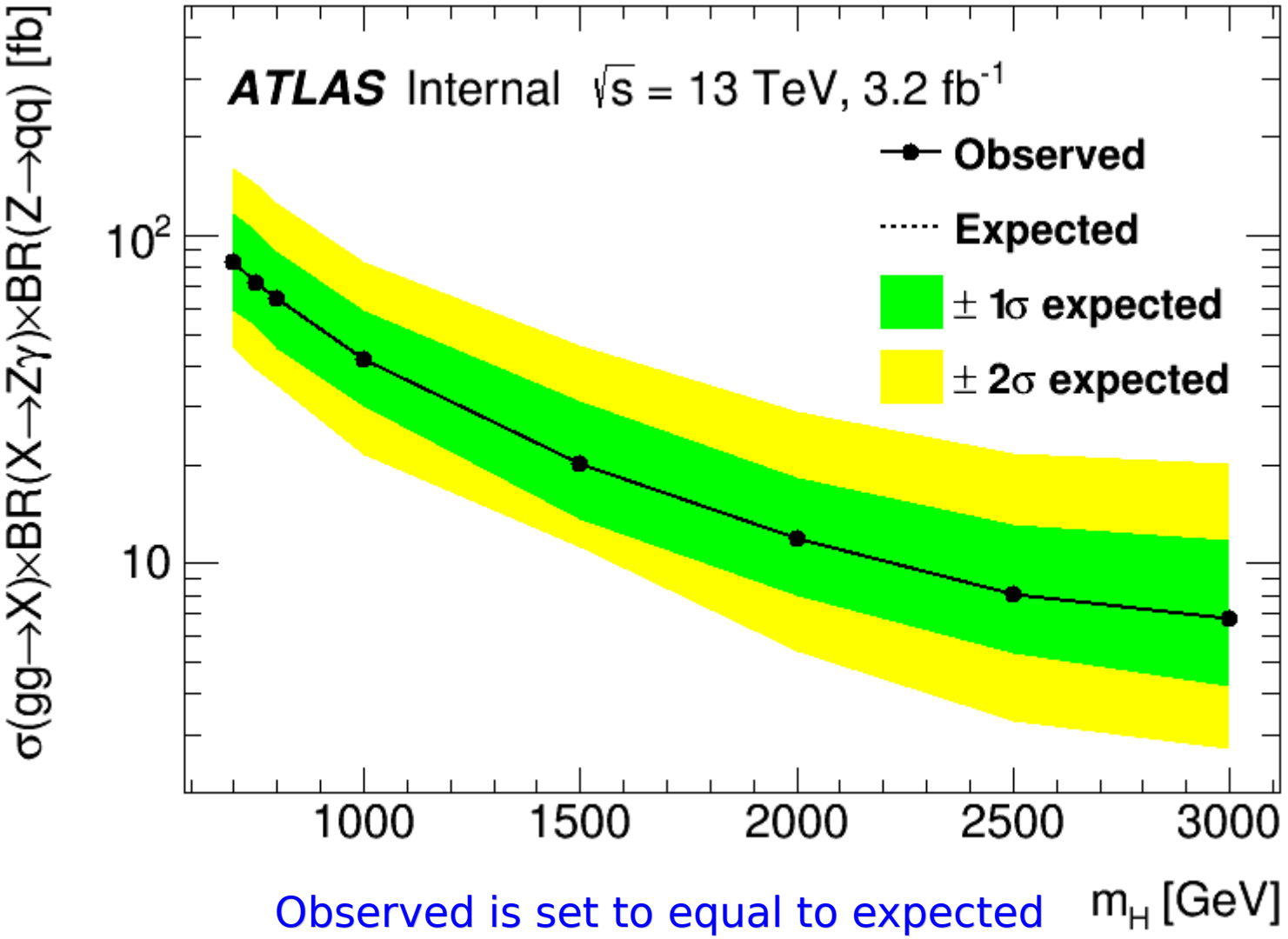






Expected limits

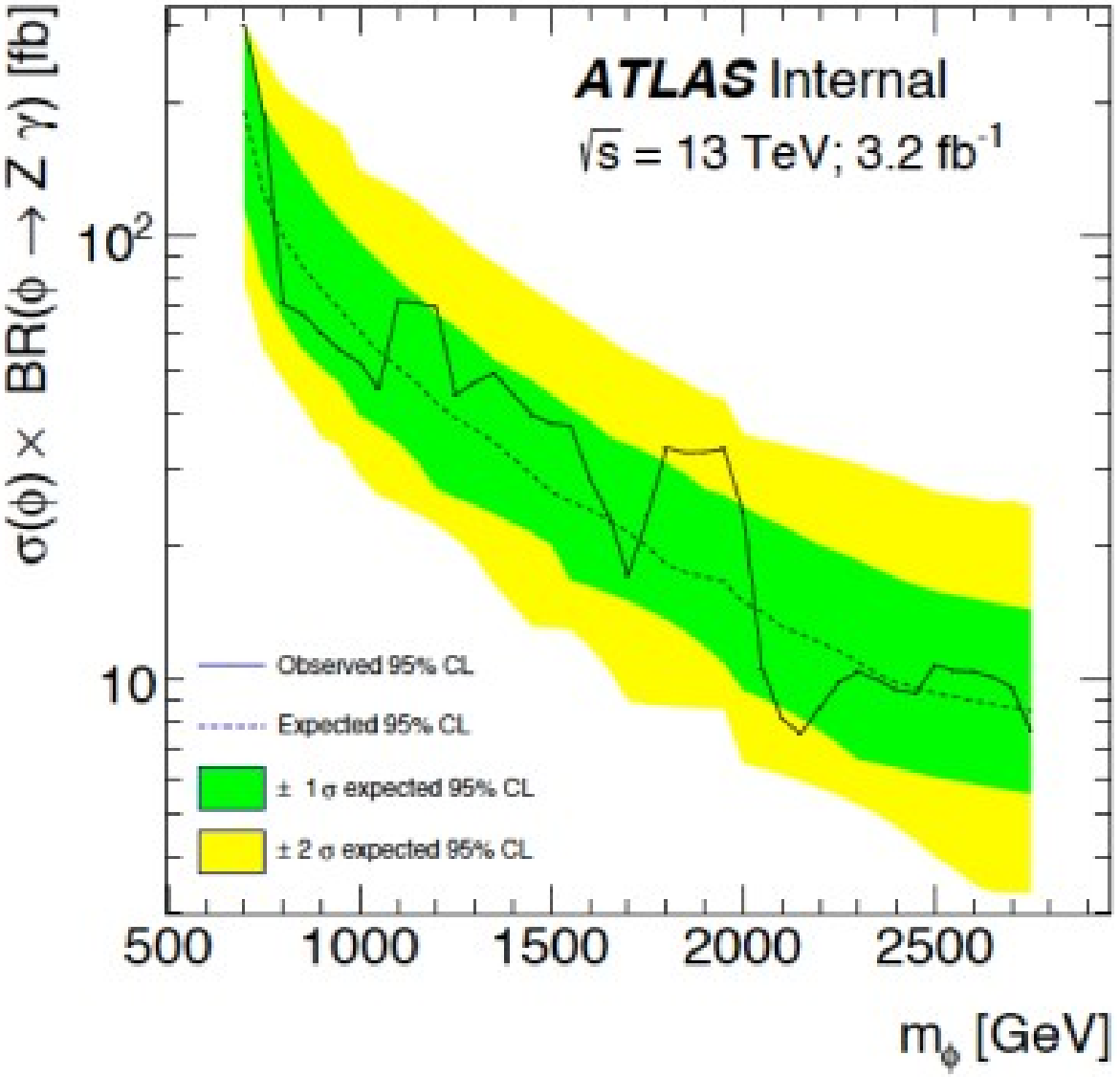
- Expected limits only (no systematics)



Observed is set to equal to expected

Compared to binned fit

- Limits with binned fit



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