Search For W_R Using t/b Jets

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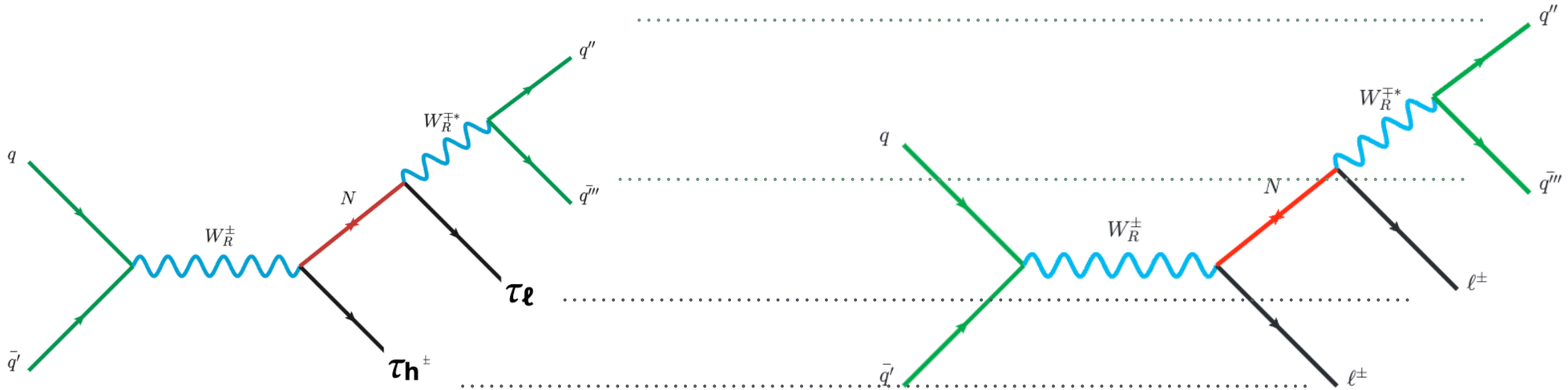
Searching For t/b Channel

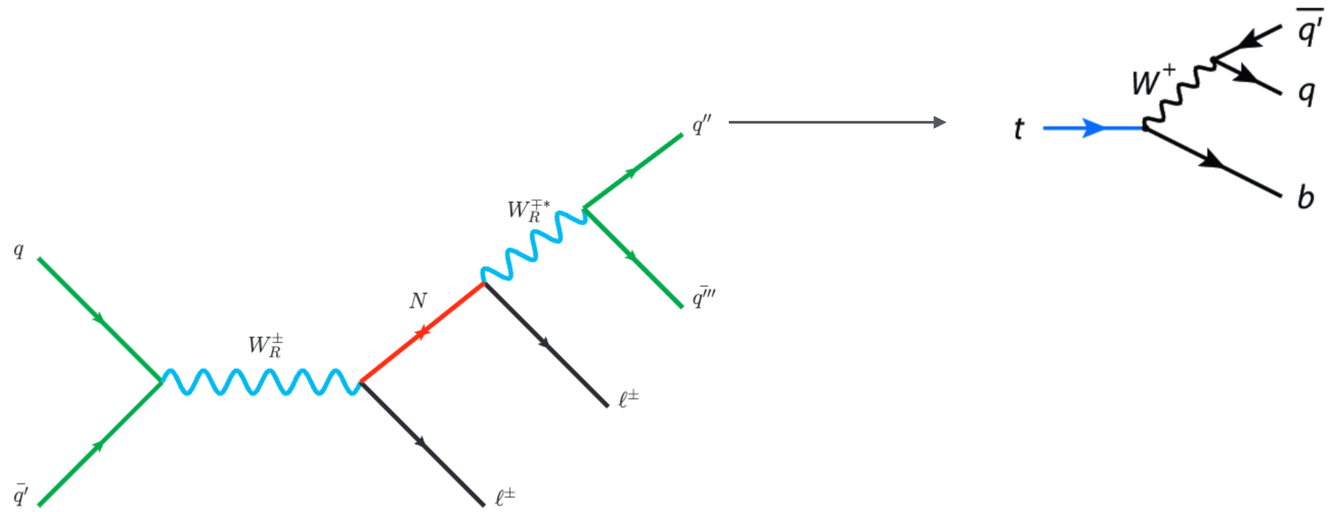


What is different in diagram:

- Out going quark : ud sc tb -> tb

- lepton : tau -> e/mu

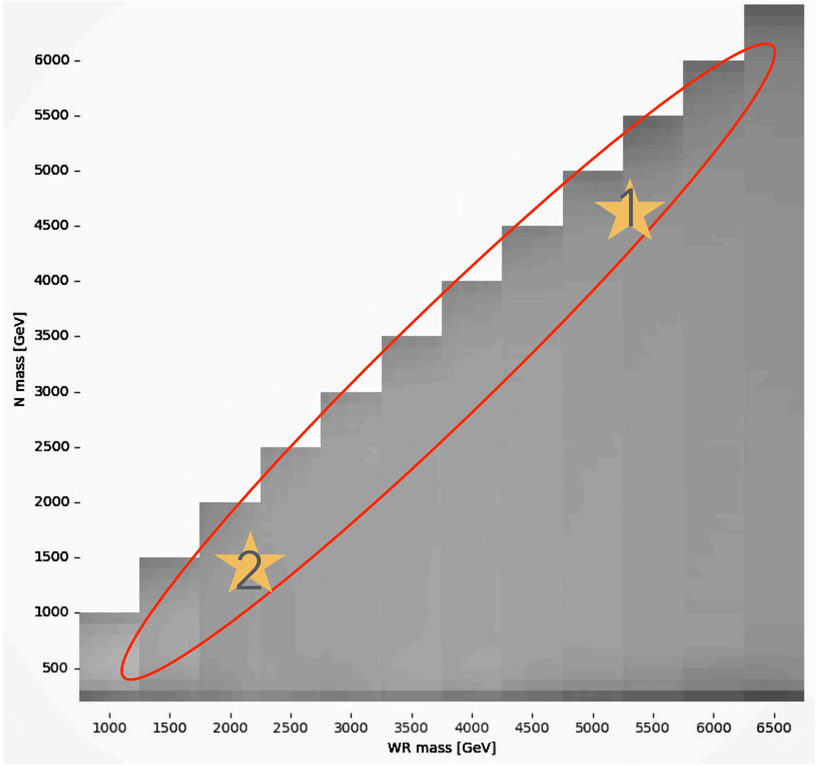
Searching Mass Region



- Topology
  If all structure is boosted , more than 5 substructure (top - 3 jets , b quark , leptons) mixed :resolved topology required

- Setting mass of W_R N similar -> makes N slow : W_R* , lepton separated
  -> makes W_R* slow : t jets & b jet separated

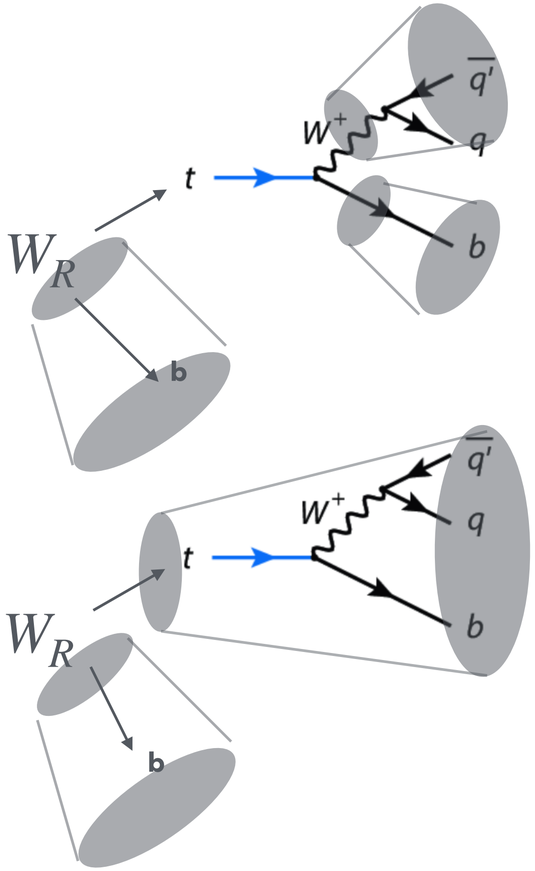
Detailed Topology Of Main Target



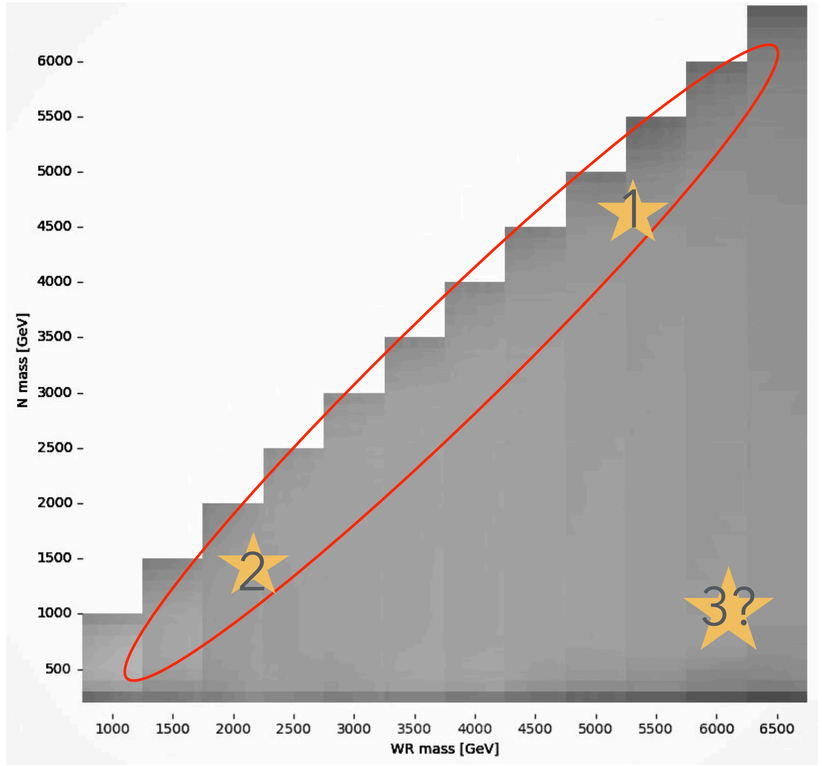
- Main target : W_R ~ N

  1. High mass W_R
  t quark boosted , separated in two jets.

  2. Low mass W_R
  Jets are separated by two jets,



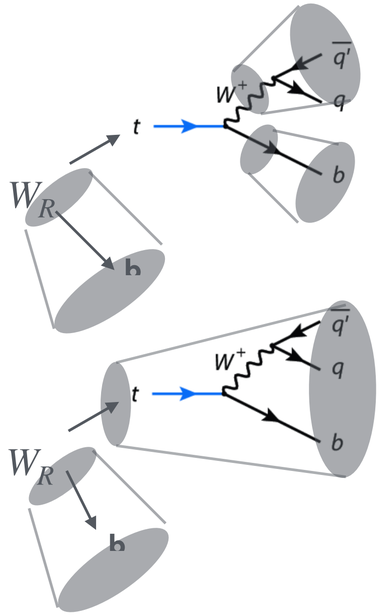
Subtarget Topology in Mass W_R~ N



- Main target : W_R ~ N

1. High mass W_R
Jets are boosted which can be inside one jet

2. Low mass W_R
Jets are separated by two jets,



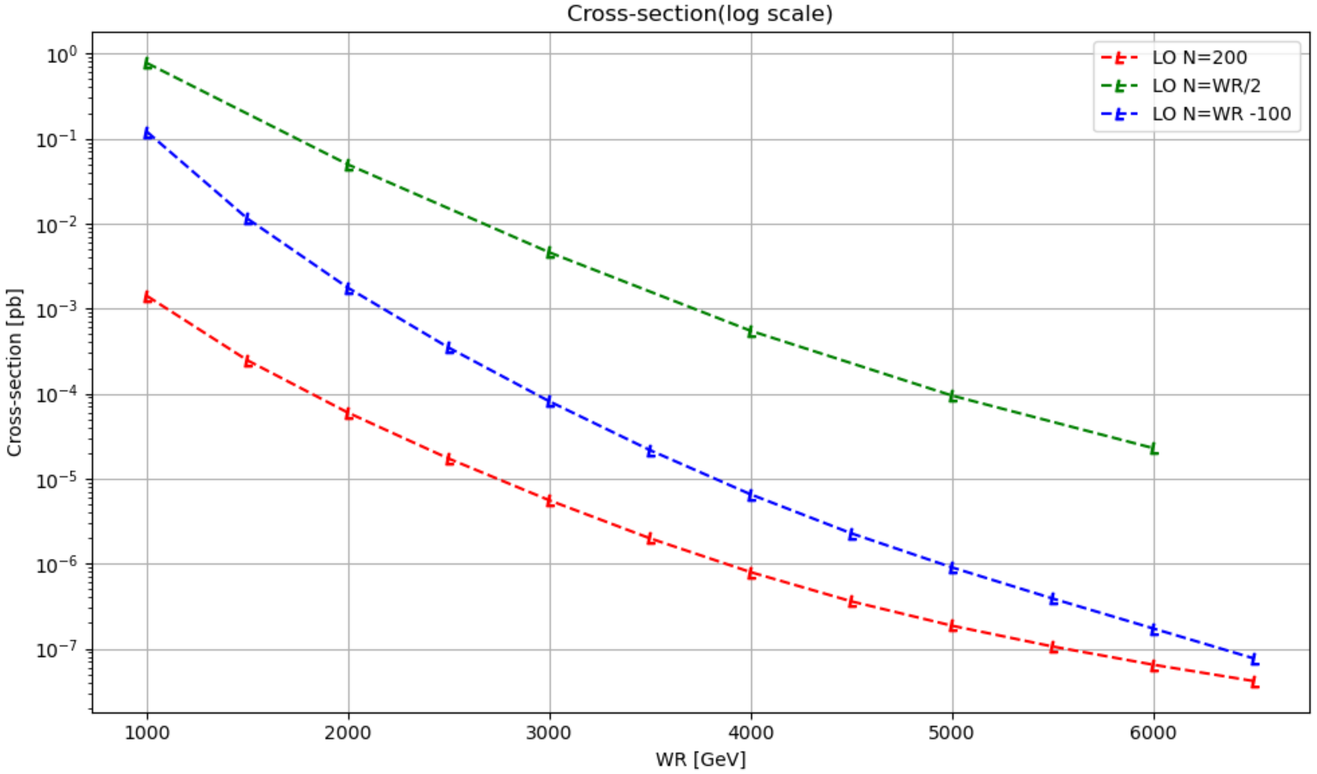
Sub-target : High W_R low N

- Onshell W_R is not useful : boosted

- Offshell W_R can be useful..? : Low mass W_R produced , similar to ★2 topology.
& low pdf variation

Cross sections checking

Structure draft



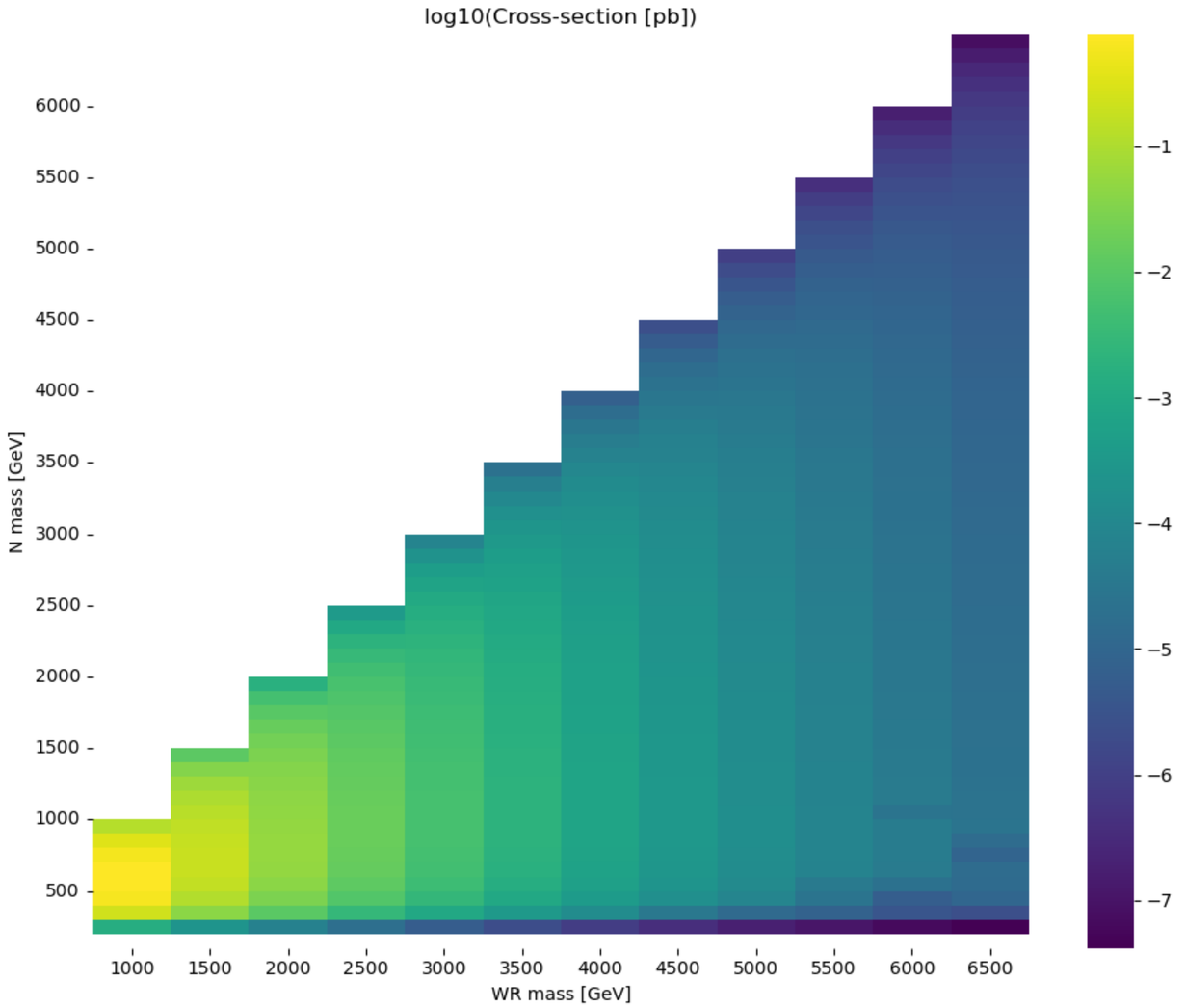
- Checked cross section with mad graph
  (v.2.9.18 20,000 run)

  - Due to phase space (top ~ 173GeV) cross section is constrained

  - N phase space makes N=WR/2 > N = WR-100

Cross Sections Checking

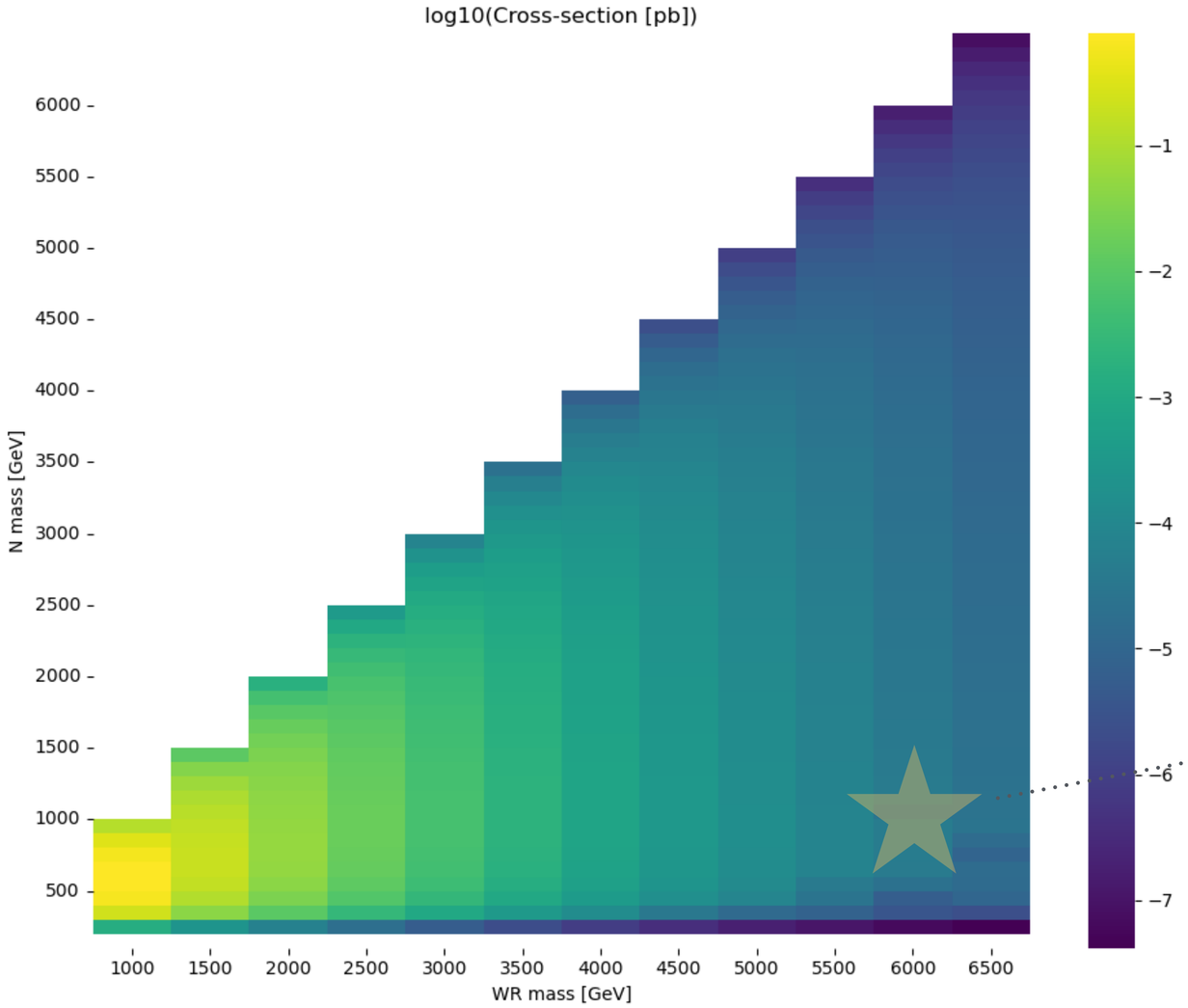
Full cross section



- W_R fixed & N increase
  Cross section increases -> decrease
  : top quark phase space constraint ->
  N phase space constraint -> ..

Cross Sections Checking

Full cross section

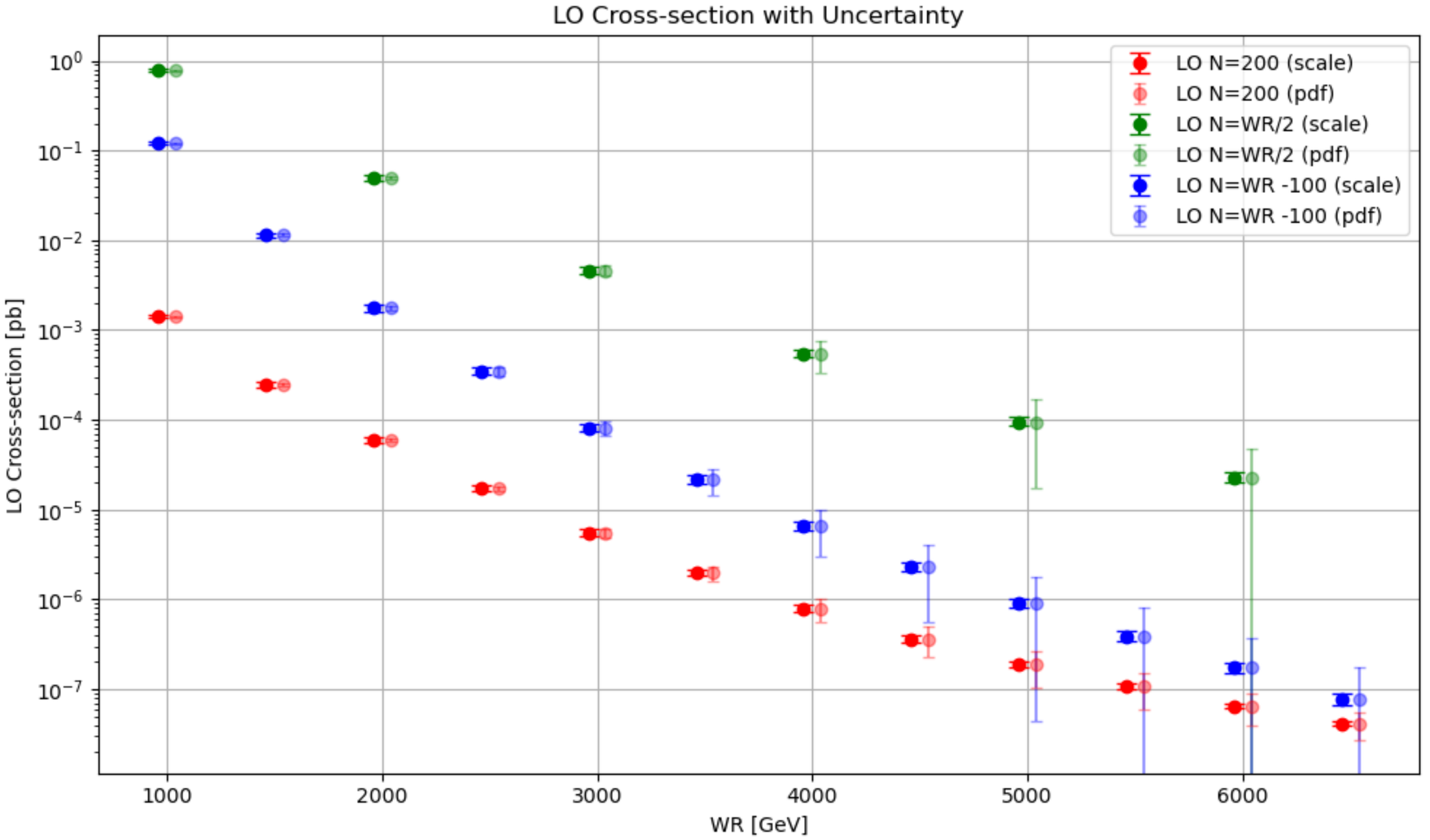


- W_R fixed & N increase
  Cross section increases -> decrease
  : top quark phase space constraint ->
  N phase space constraint -> ..

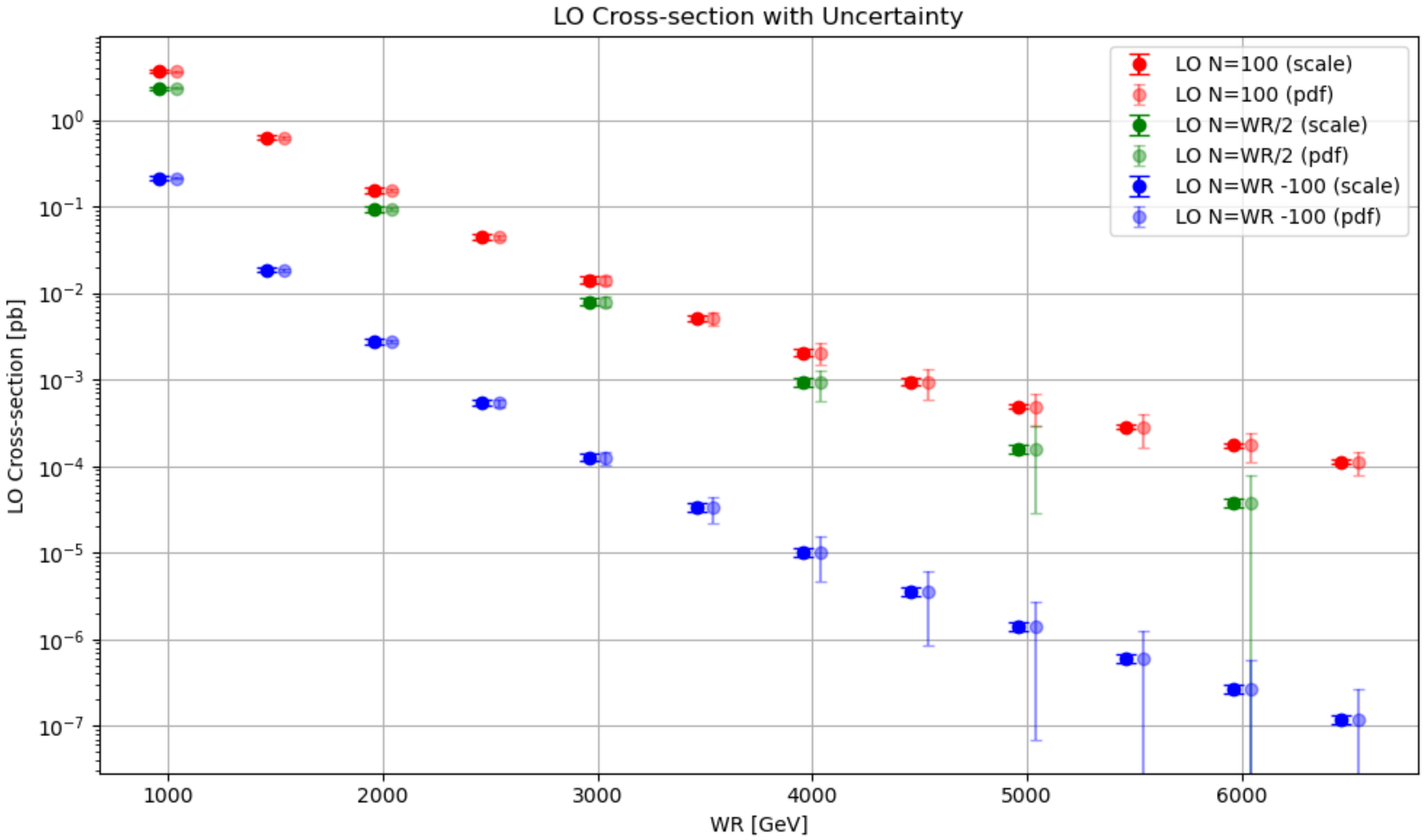
- Now checking on # of offhsell W_R in this region

Backups

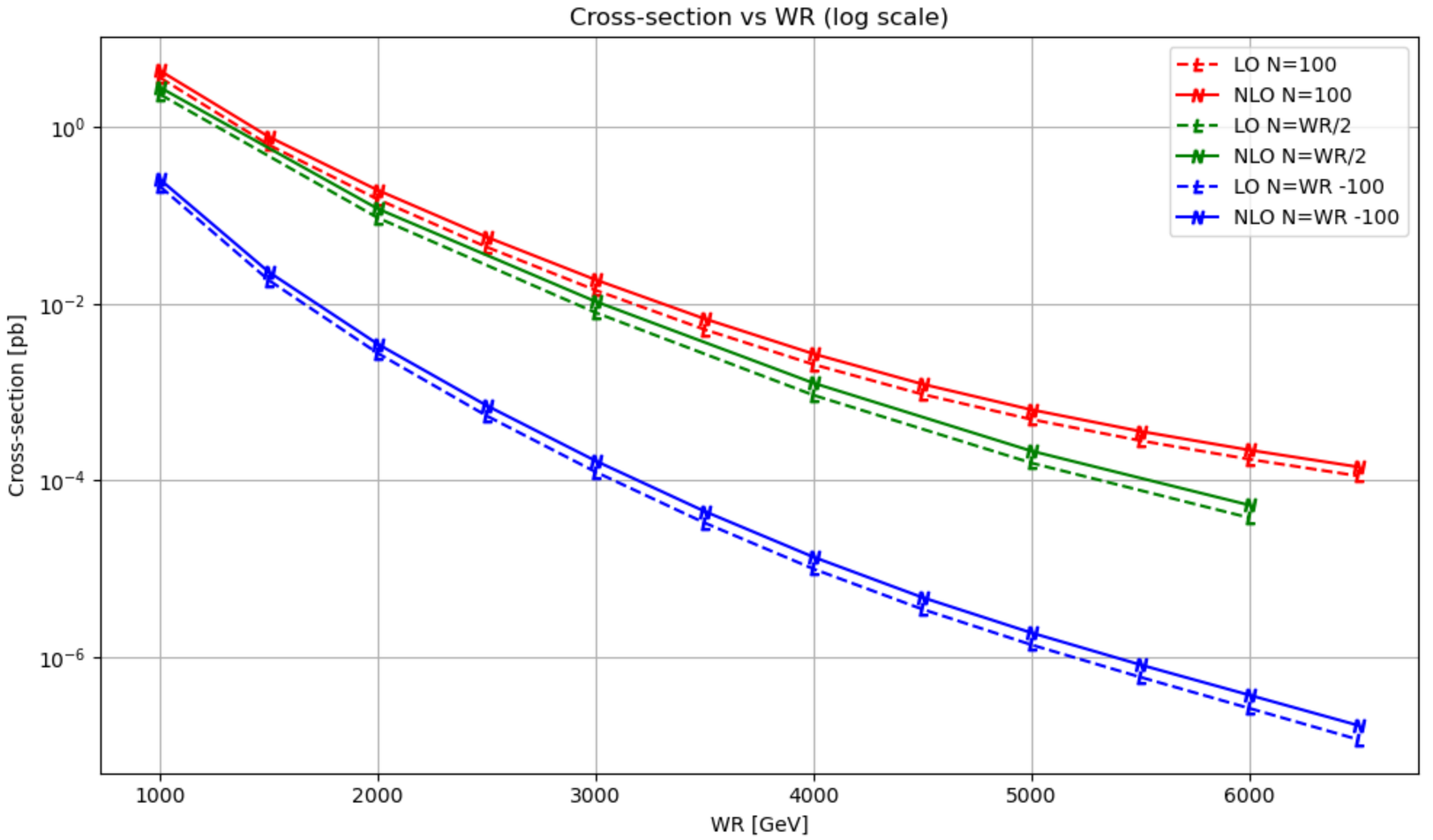
Pdf & scale variation



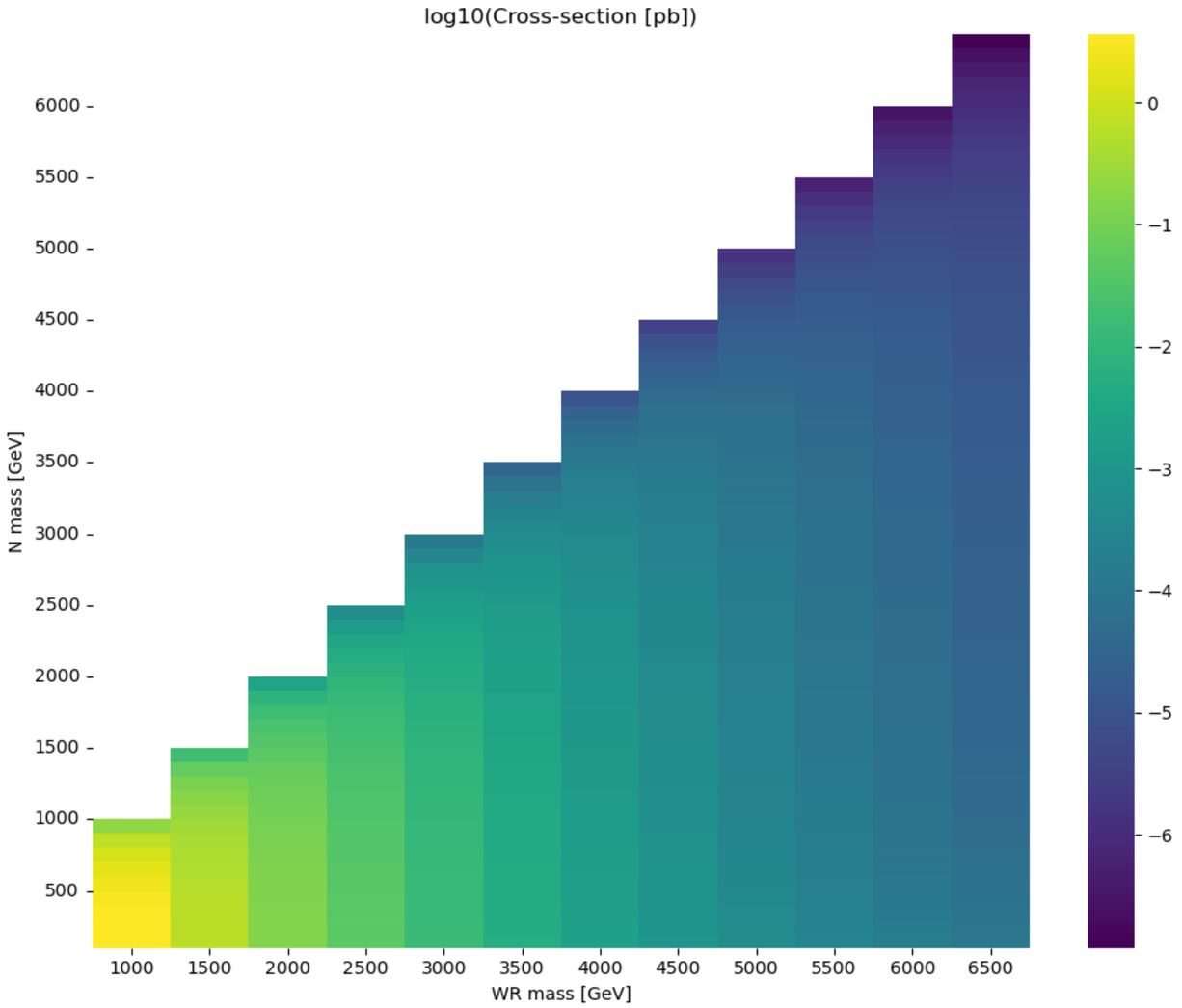
pdf & scale variation for tau



Cross section for tau



Full cross section for tau



Thanks!