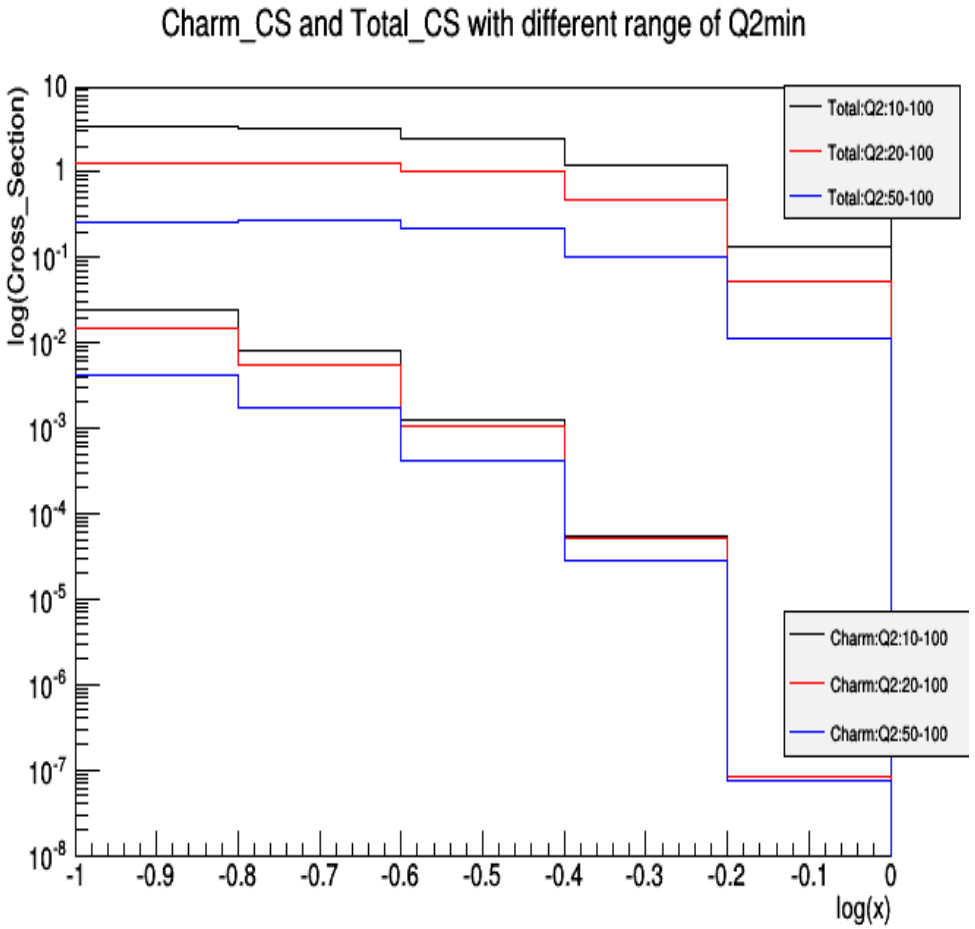
Kinematic Optimization for F2c

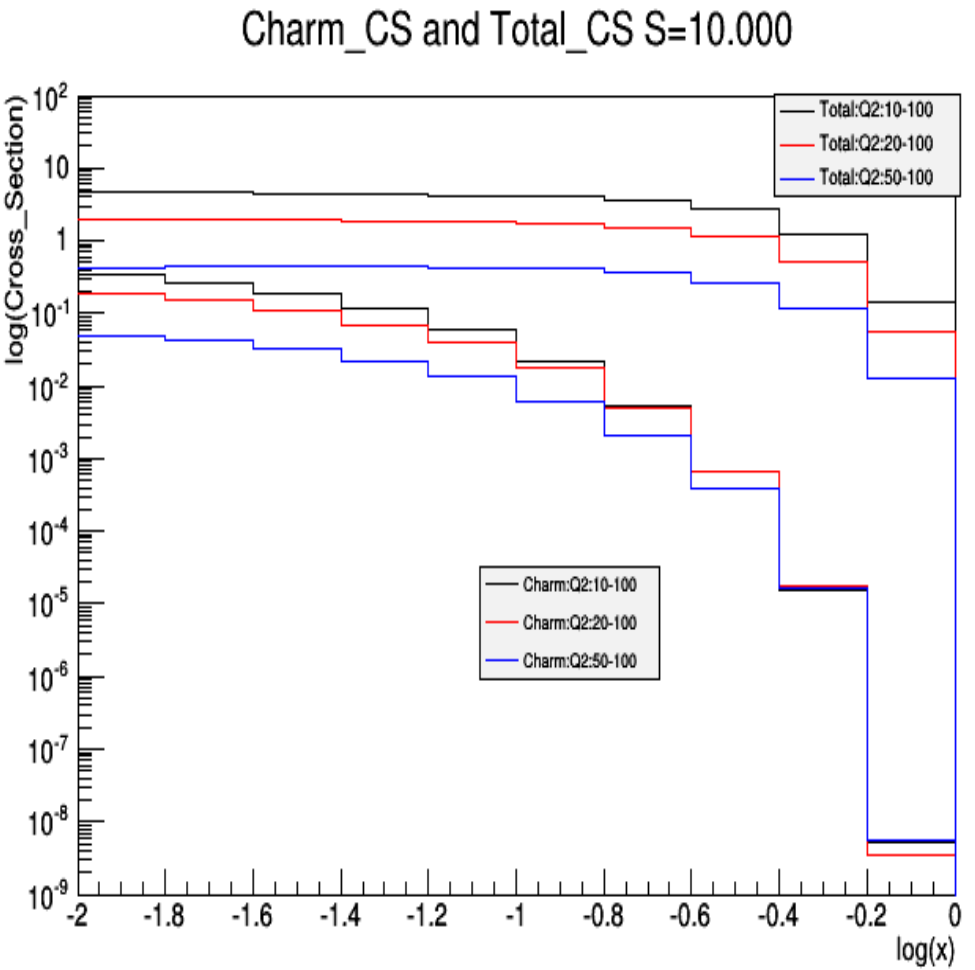
Cross section is integrated over fixed bin on X (xbj) and Q2. Charm cross section comes from HVQDIS, total cross section from Heavy Quark code from Christian.

Set limitation for integration: Q2= X* Y *SeN and Y< 1

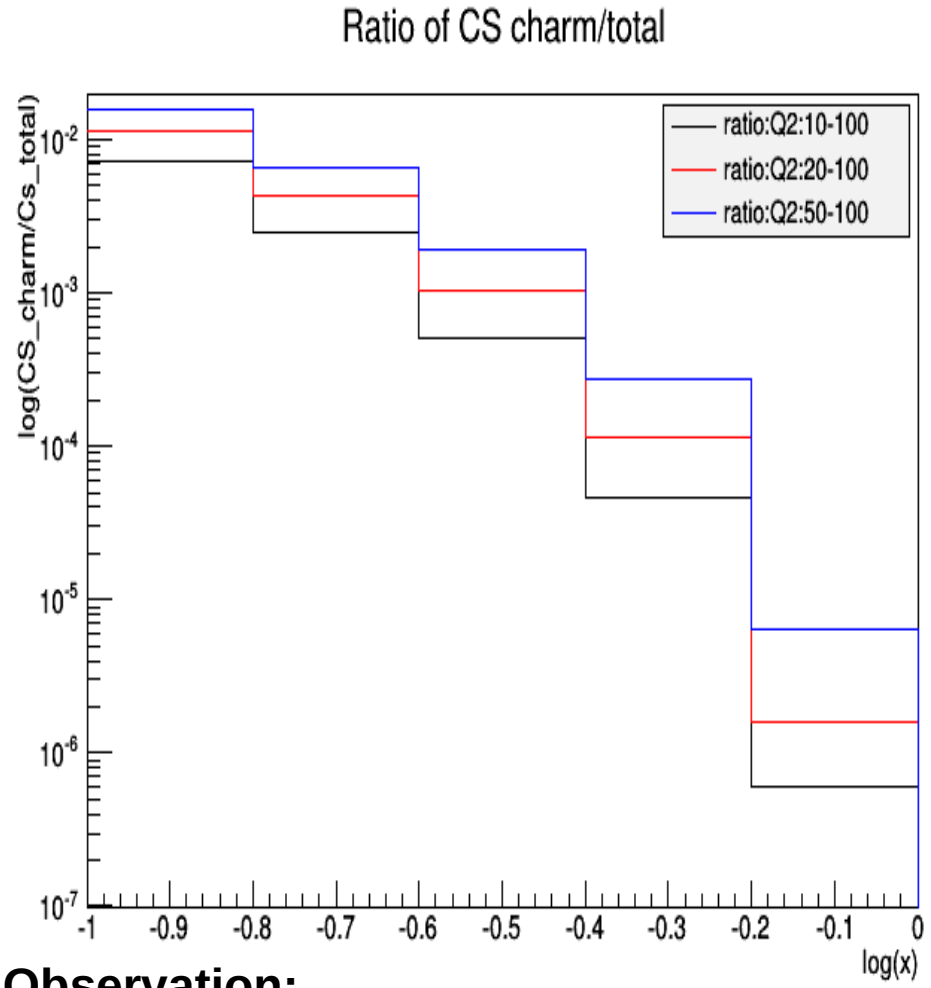
- For SeN= 1000 Set Range of X [0.1, 1] => Q2max = Xmin * SeN = 100GeV2
- For SeN = 10.000 Set Range of X [0.01, 1] =>Q2max = Xmin *SeN = 100 GeV2

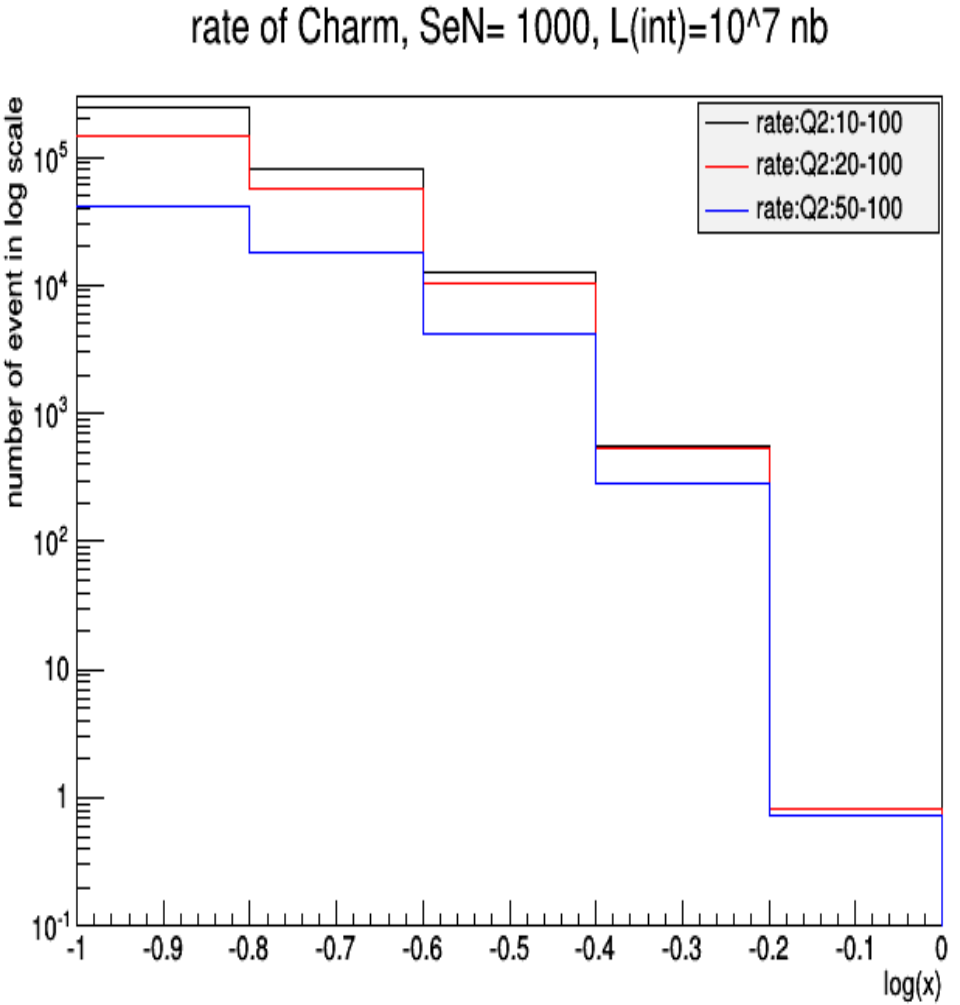
Fixed Q2max, change Q2min= 10, 20, 50 GeV2. And do binning on X , 5 bins per decade





SeN= 1000. X [0.1 ,1] , Qmax=100 Gev2





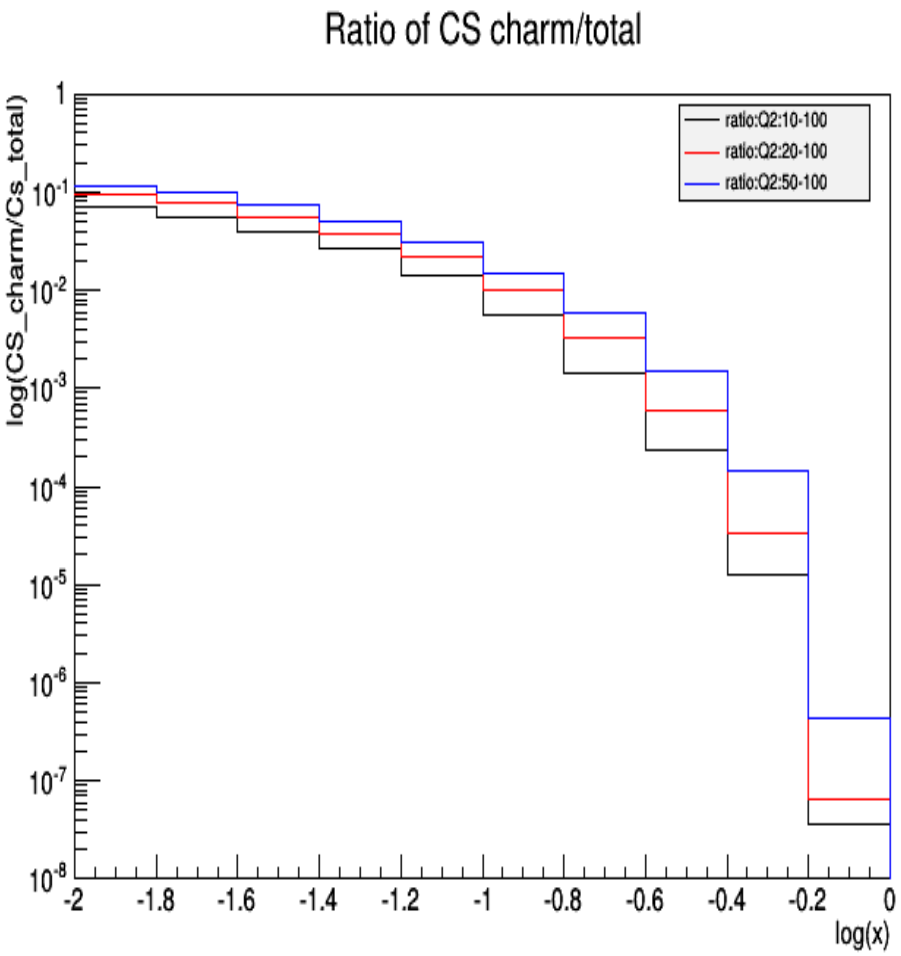
Observation:

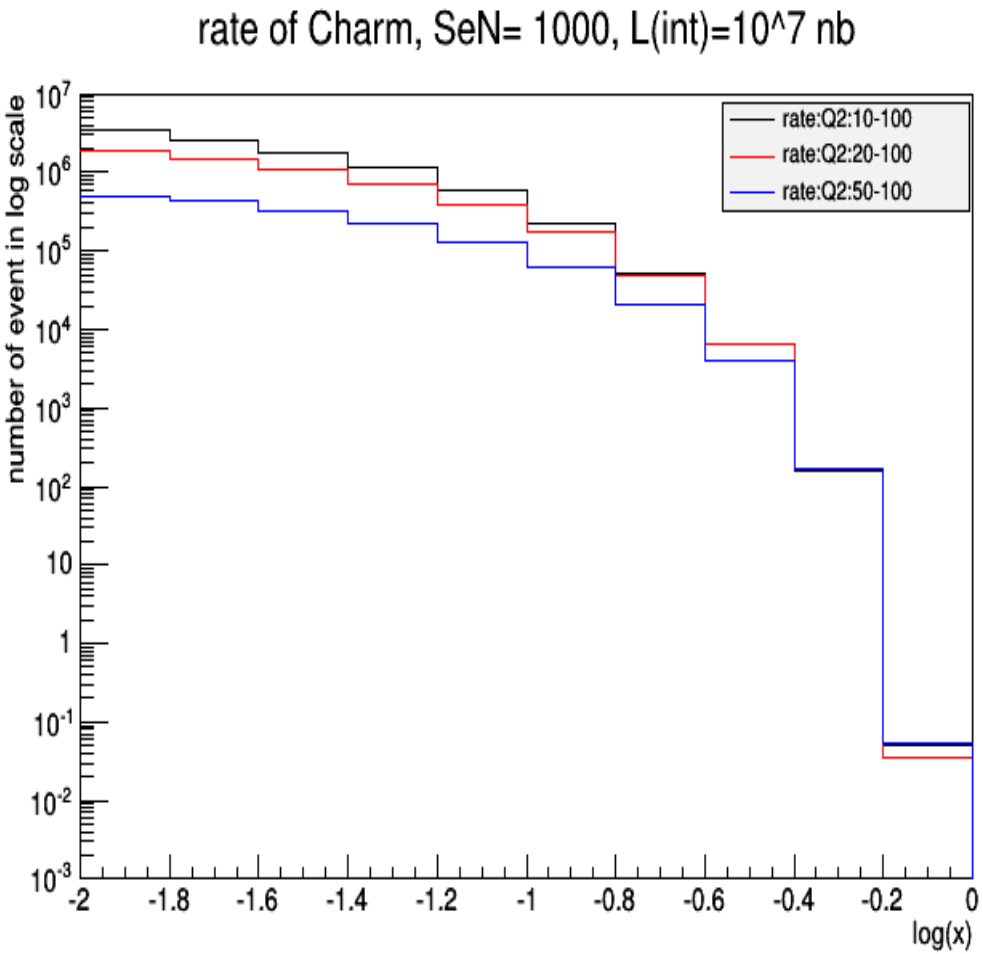
- In 1 bin of X both charm and total cross section decrease when Q2min increase because smaller range of integration on Q2.

-But in 1 bin of X ratio of charm/total increase when Q2min increase. So total CS dying much faster than charm with higher range of Q2.

- In 1 bin of X rate of charm also decrease when Q2min increasing.

SeN = 10. 000, X [0.01, 1] , Q2max = 100 GeV2





Observation: the same between two setting SeN = 1000 and SeN = 10.000

Optimization: Estimation for kinematic optimization where we have ratio of charm/ total is biggest and absolute rate must be possible for experiment detection.