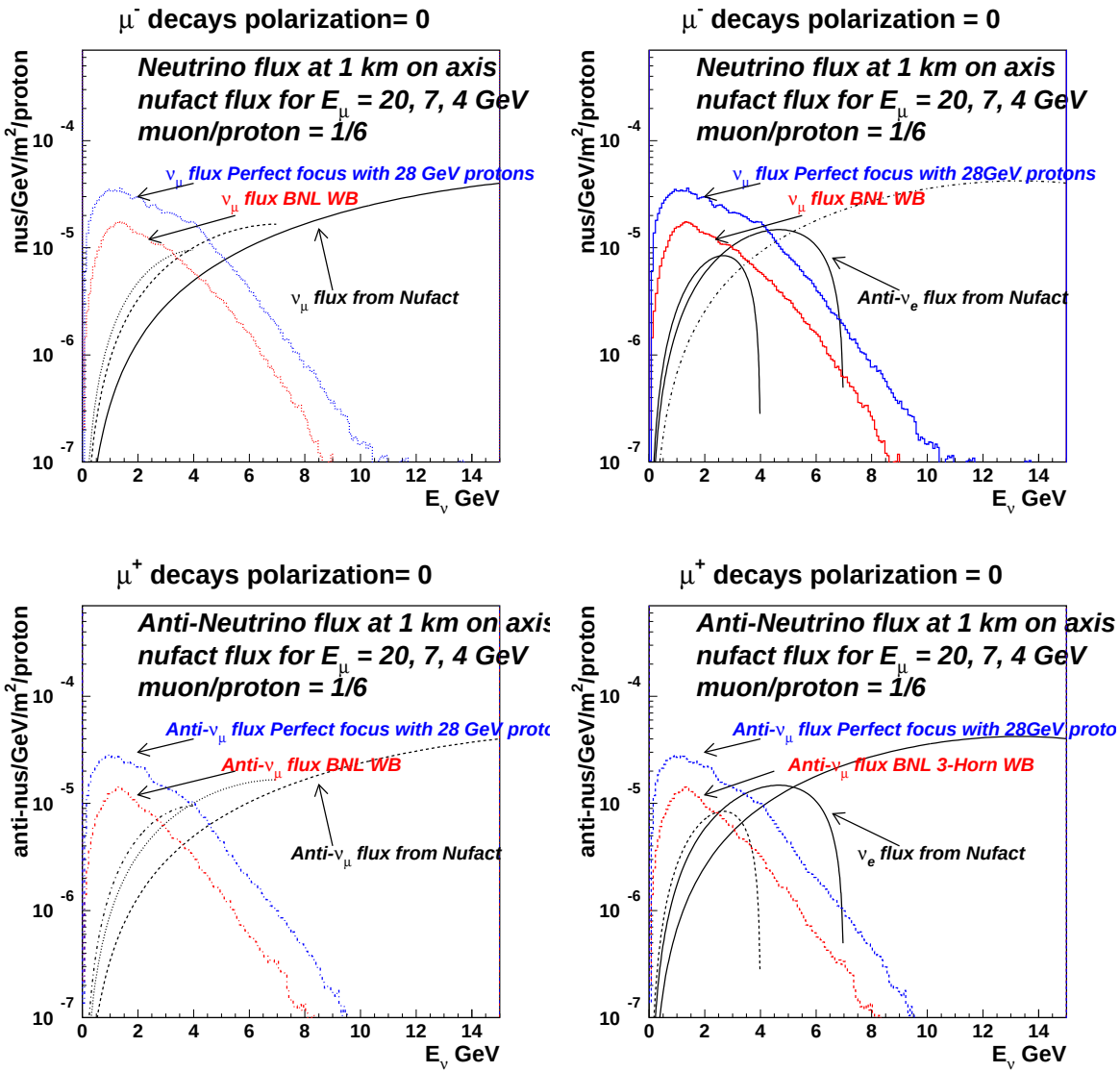
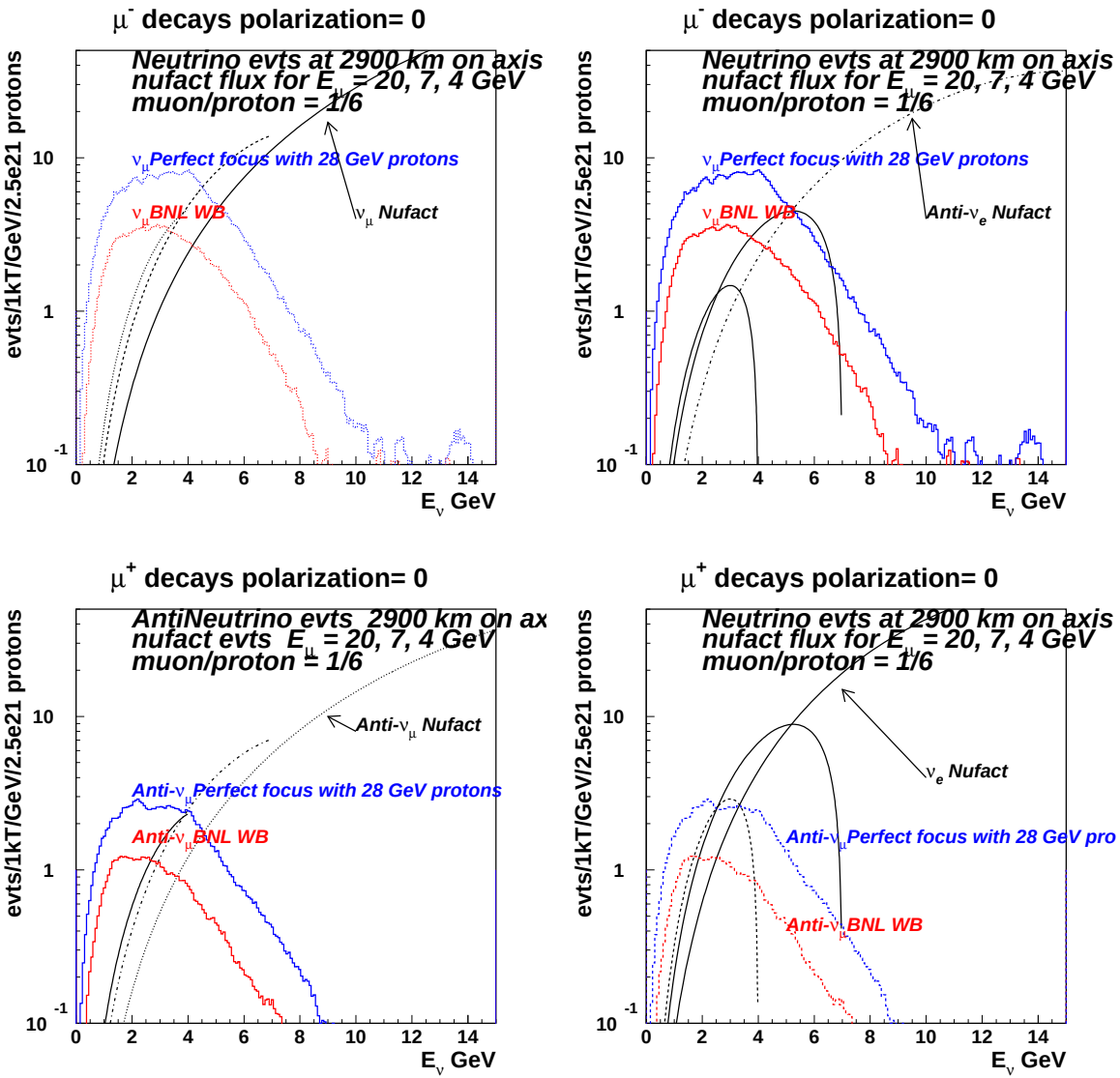
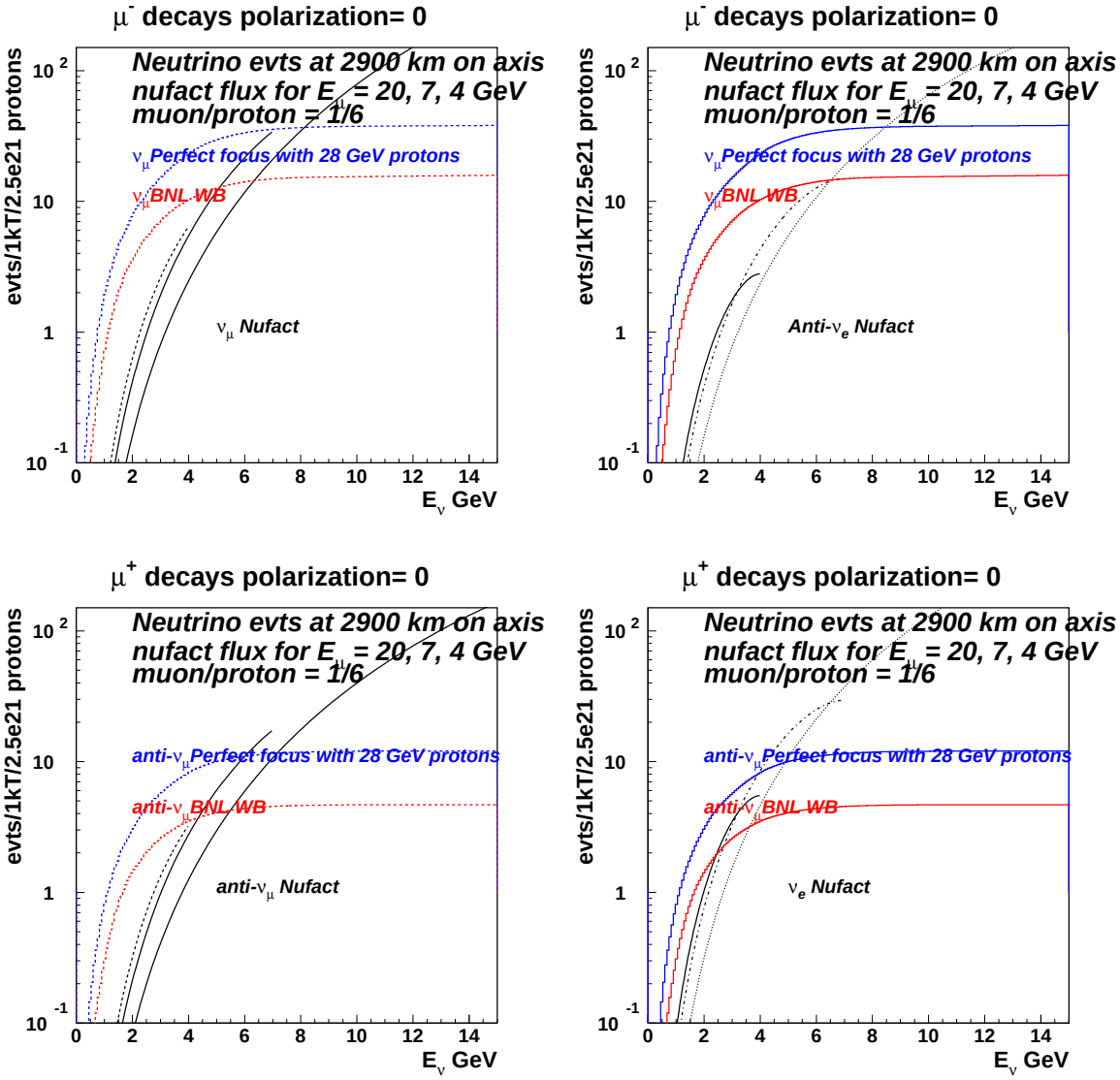
BNL Wide band versus nufact flux



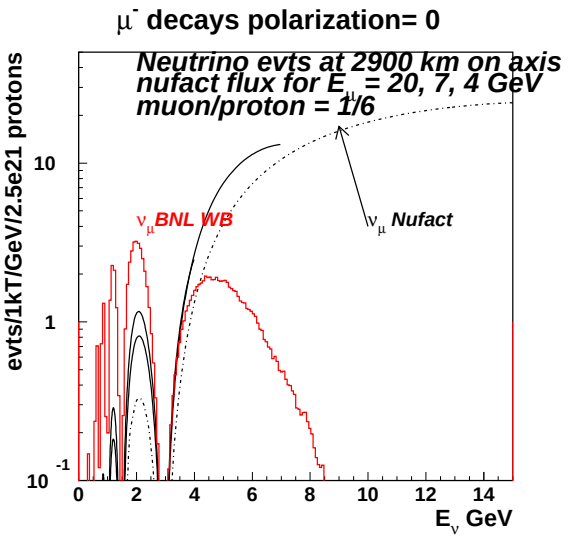
BNL Wide band vs nufact events

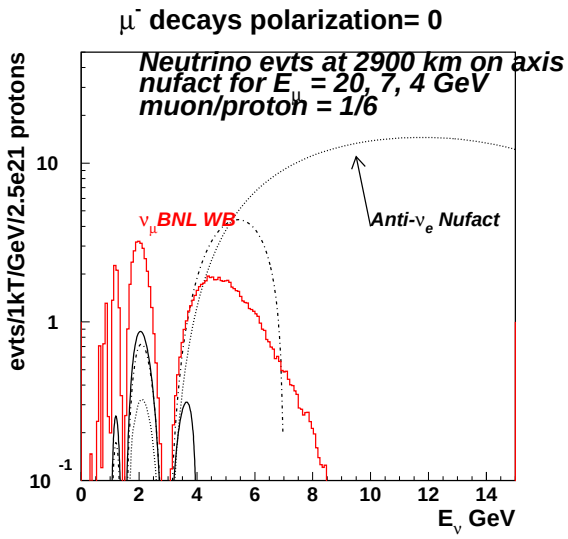


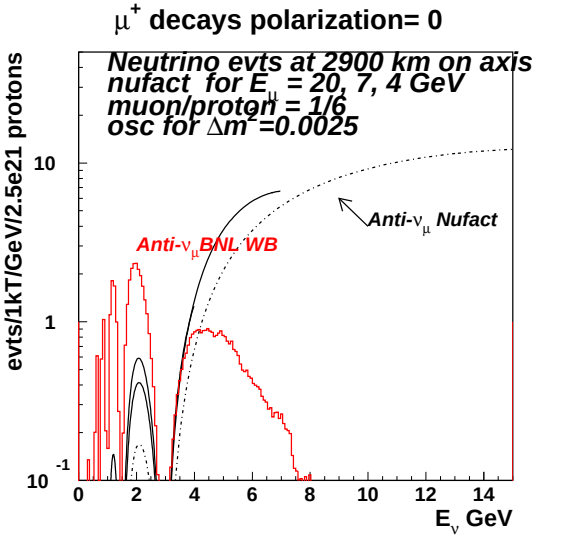
BNL Wide band vs nufact integral

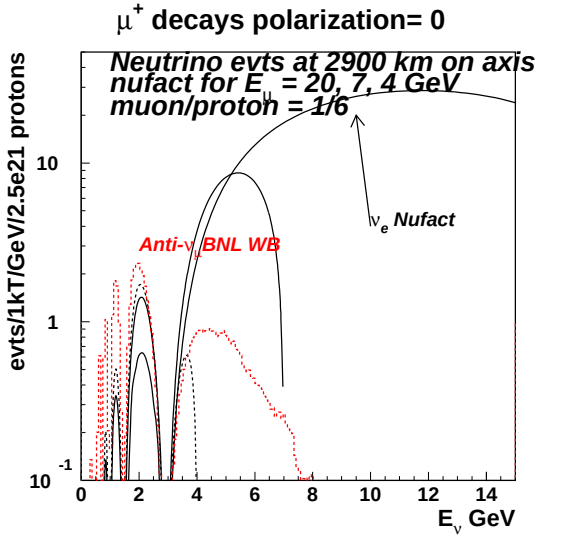


BNL Wide band vs nufact osc



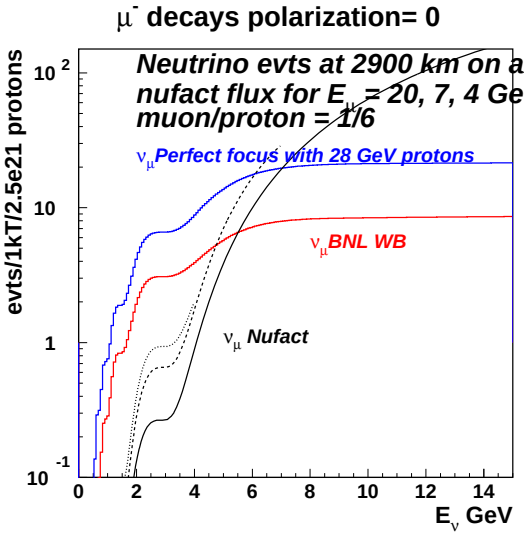


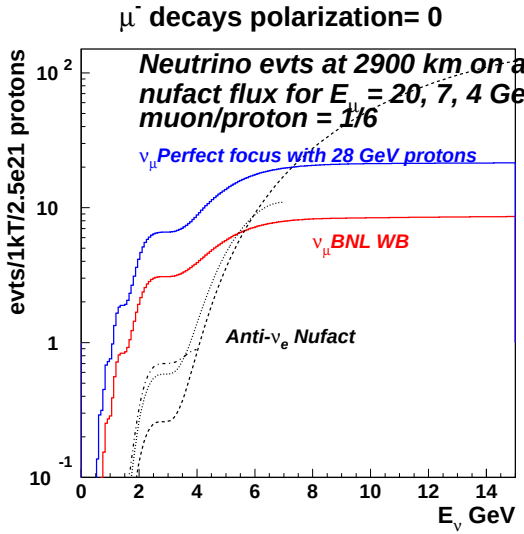




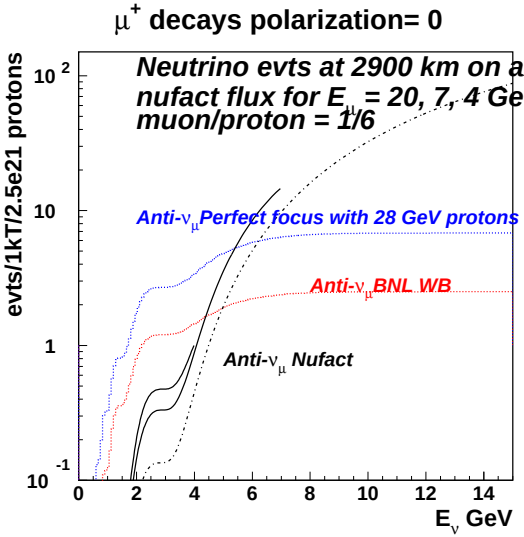
Osc. event rate, full mix, $\delta m^2 = 0.0025 eV^2$ no matter effects.

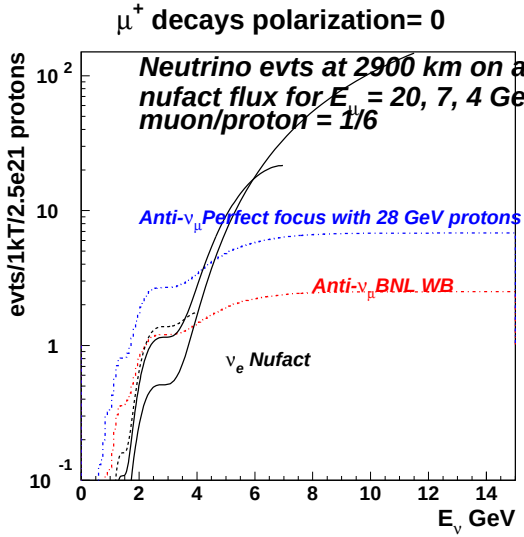
BNL Wide band vs nufact osc integral



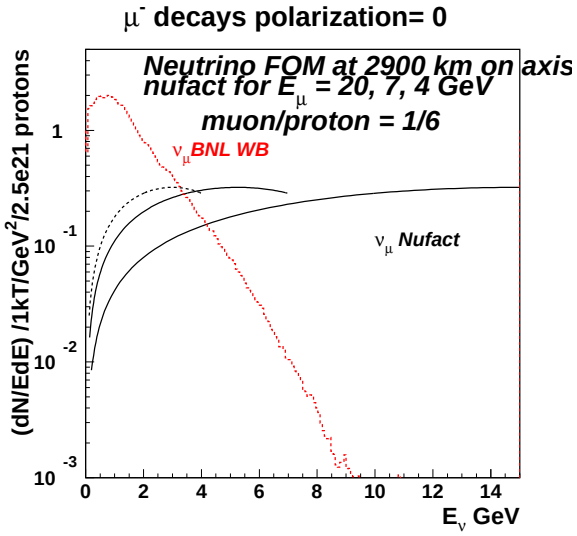


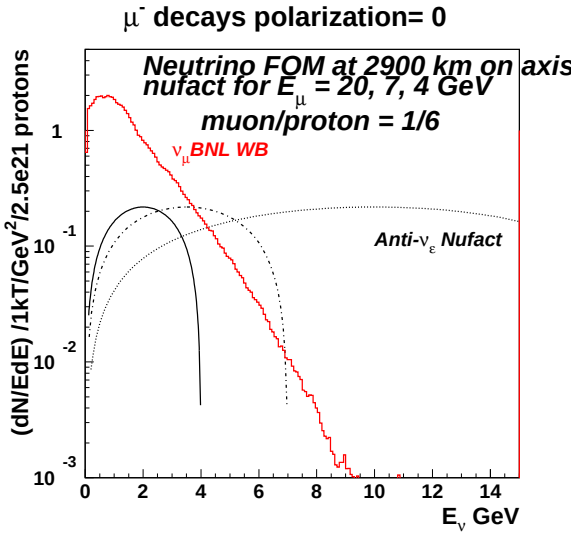
Osc. integral, full mix, $\delta m^2 = 0.0025 eV^2$ no matter effects.

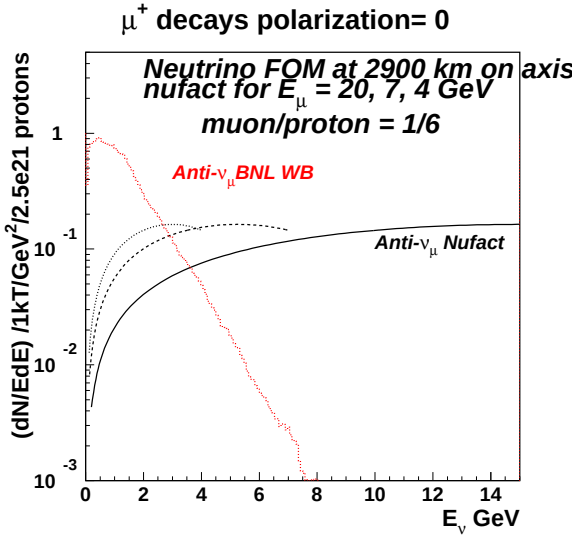


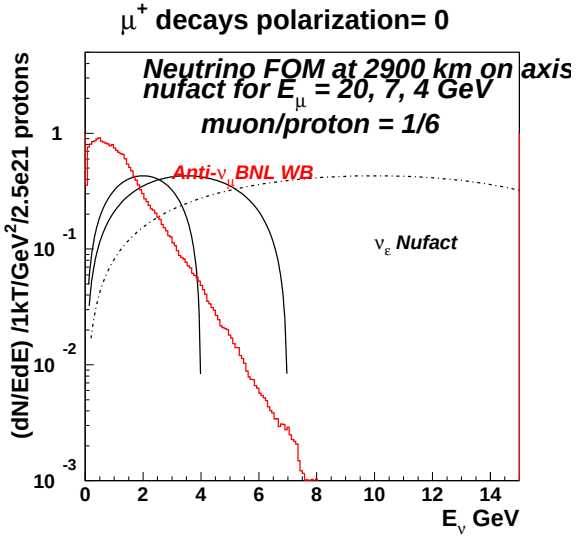


BNL Wide band vs nufact 1/E F.O.M.









Bob's figure of merit: 1/E*d(Rate)/dE

CP Figure of Merit

Assume that total measured rate from oscillations

$$N = N_0 + N_{cp}$$

per energy bin.

Additional rate due to CP violation

$$f = N_{cp}/N \propto \alpha/E$$

Error on CP rate after subtraction of N_0

$$\delta N_{cp} = \sqrt{N}$$

Figure of merit per energy bin is deviation is sigma-squared

$$F.O.M. = (N_{cp}/\delta N_{cp})^2 = f^2 \times N$$

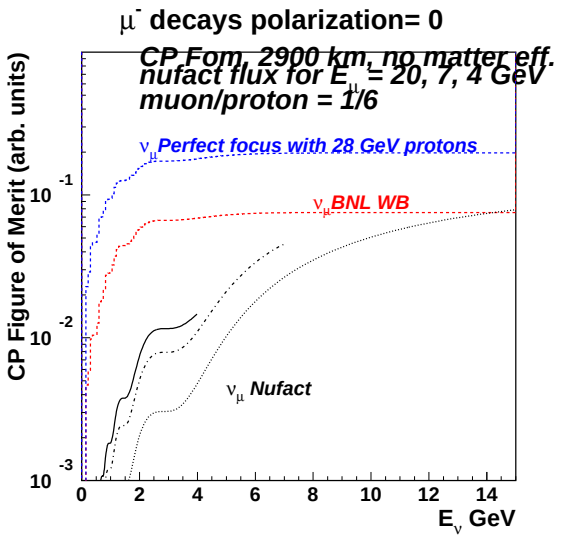
Oscillated event rate (leading term)

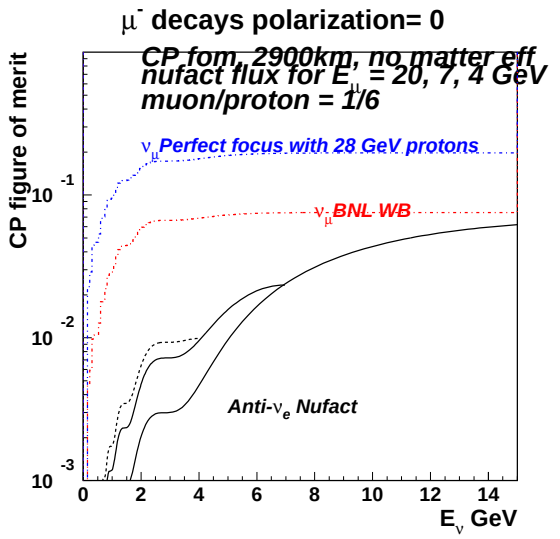
$$N \approx \int \phi(E)\sigma(E)\sin^2(\Delta m^2 L/4E)dE$$

Figure of Merit is integral number of sigma squared

$$\int (F.O.M.)dE \propto \int (\alpha/E)^2 \times \phi(E)\sigma(E)\sin^2(\Delta m^2 L/4E)dE$$

BNL Wide band vs nufact CP F.O.M.





CP Figure of merit