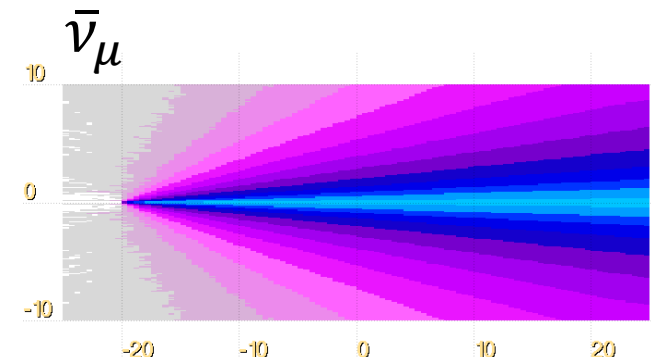
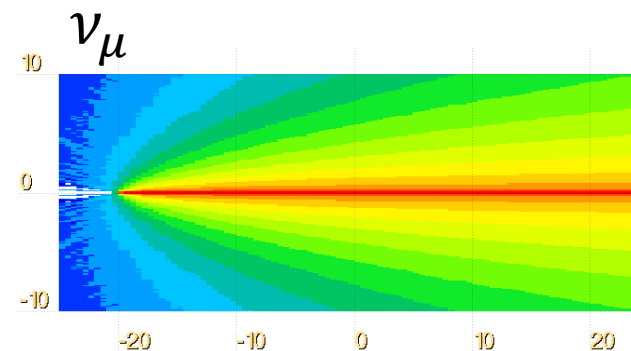
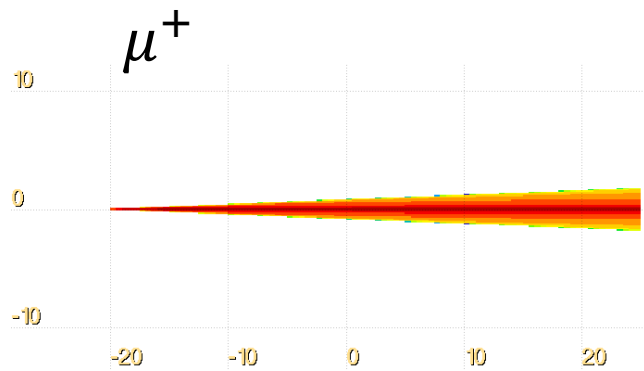
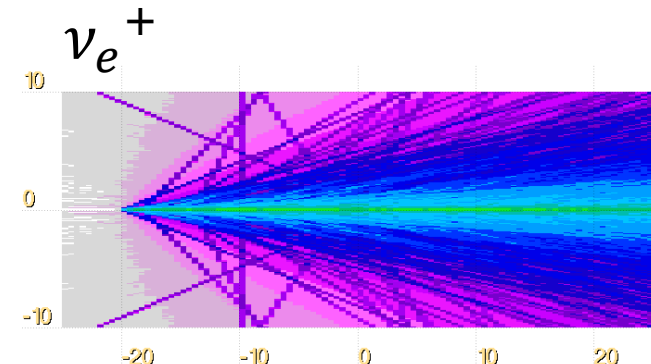
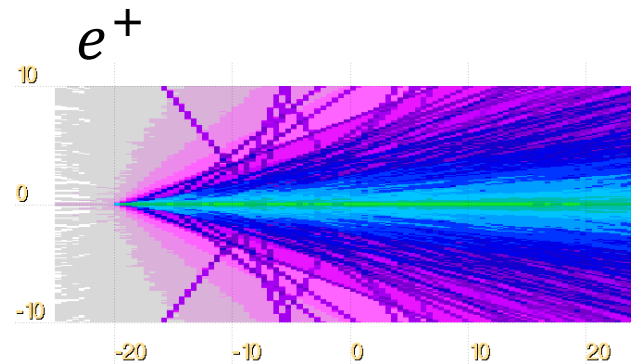
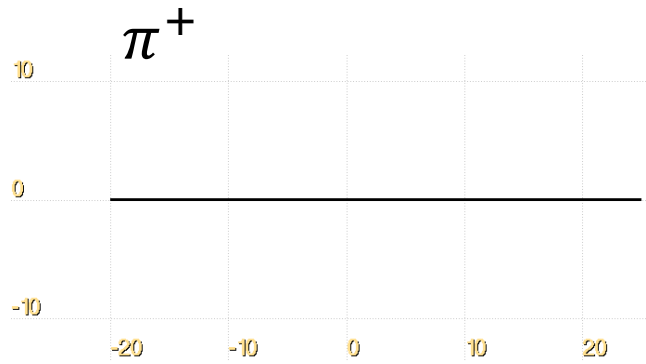




# Decay-length biasing exercise

# Decay-length biasing exercise

- Try to replicate the plots shown in the lecture



# Decay-length biasing exercise

## Input preparation and running

- Start from the input file provided
- No need to change the geometry (pions traveling in vacuum)
- Add preprocessor instructions to use the same input to run with and without biasing
- Set a decay-length of 5 cm for  $\pi^+$  and  $\mu^+$
- Transport neutrinos
- Run a total of 250000 primaries, use cycles and spawn
- Do not forget to merge the results

# Decay-length biasing exercise

## Plotting results

- In flair Geometry tab
  - Create 12 new layers to show the fluence of  $\pi^+$ ,  $\mu^+$ ,  $e^+$ ,  $\nu_e$ ,  $\nu_\mu$ ,  $\bar{\nu}_\mu$  with and without biasing
  - Add for each layer the appropriate USRBIN and detector
  - Use the longitudinal views to see the biasing effect

## Bonus question

- What happens if a very short decay-length is set?

