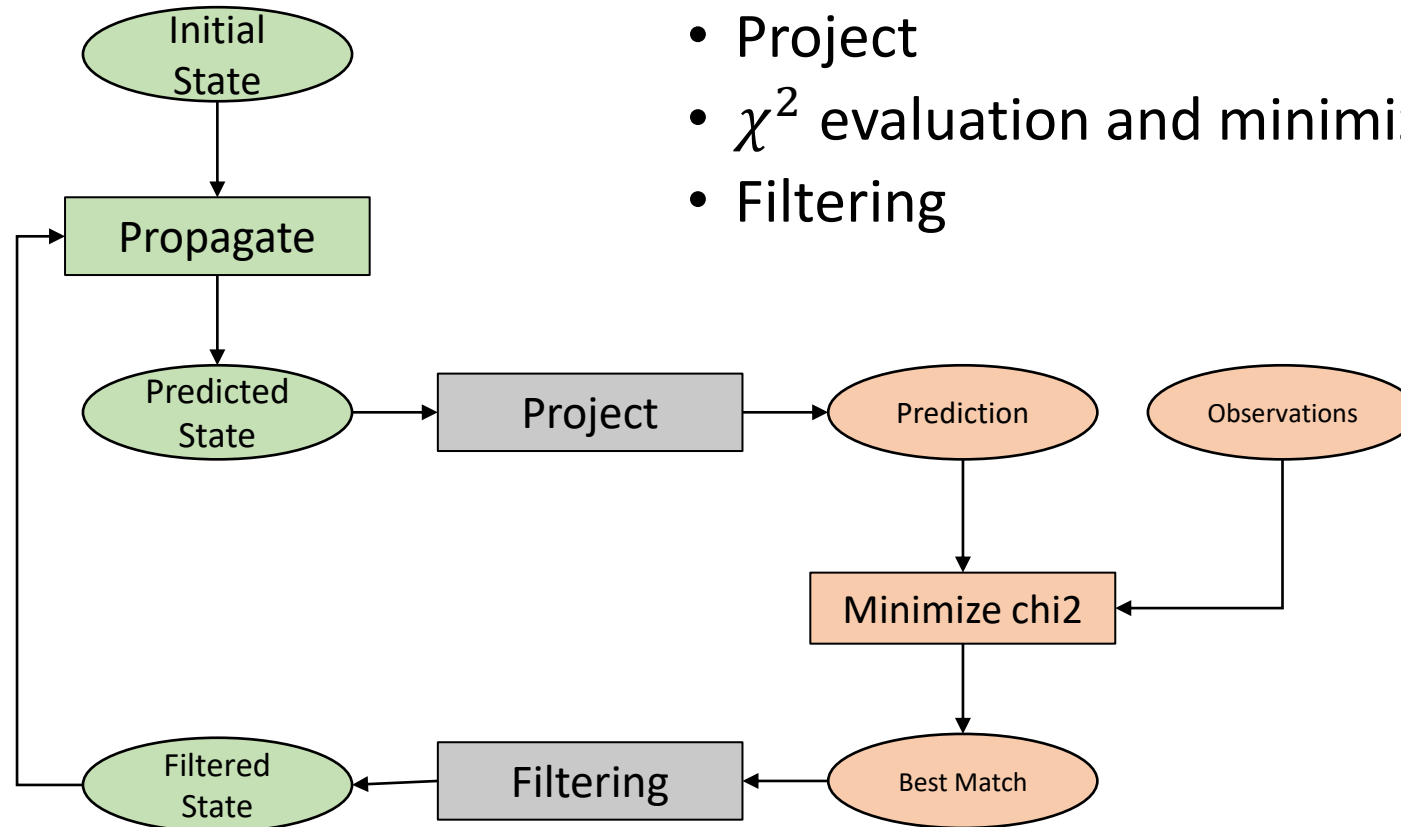




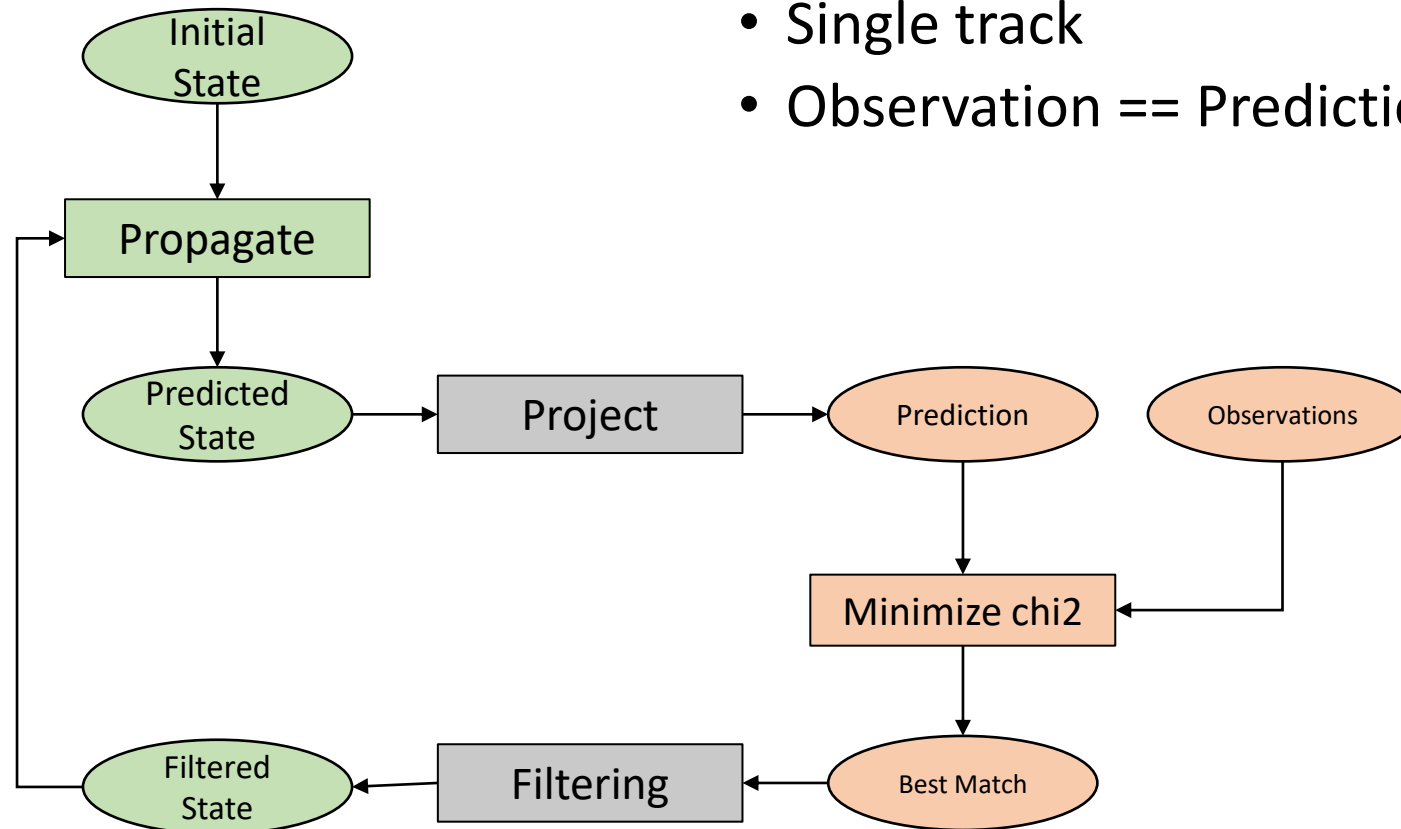
# Kalman Filter: Propagation

- «Steps» are:
  - Propagate
  - Project
  - $\chi^2$  evaluation and minimization
  - Filtering



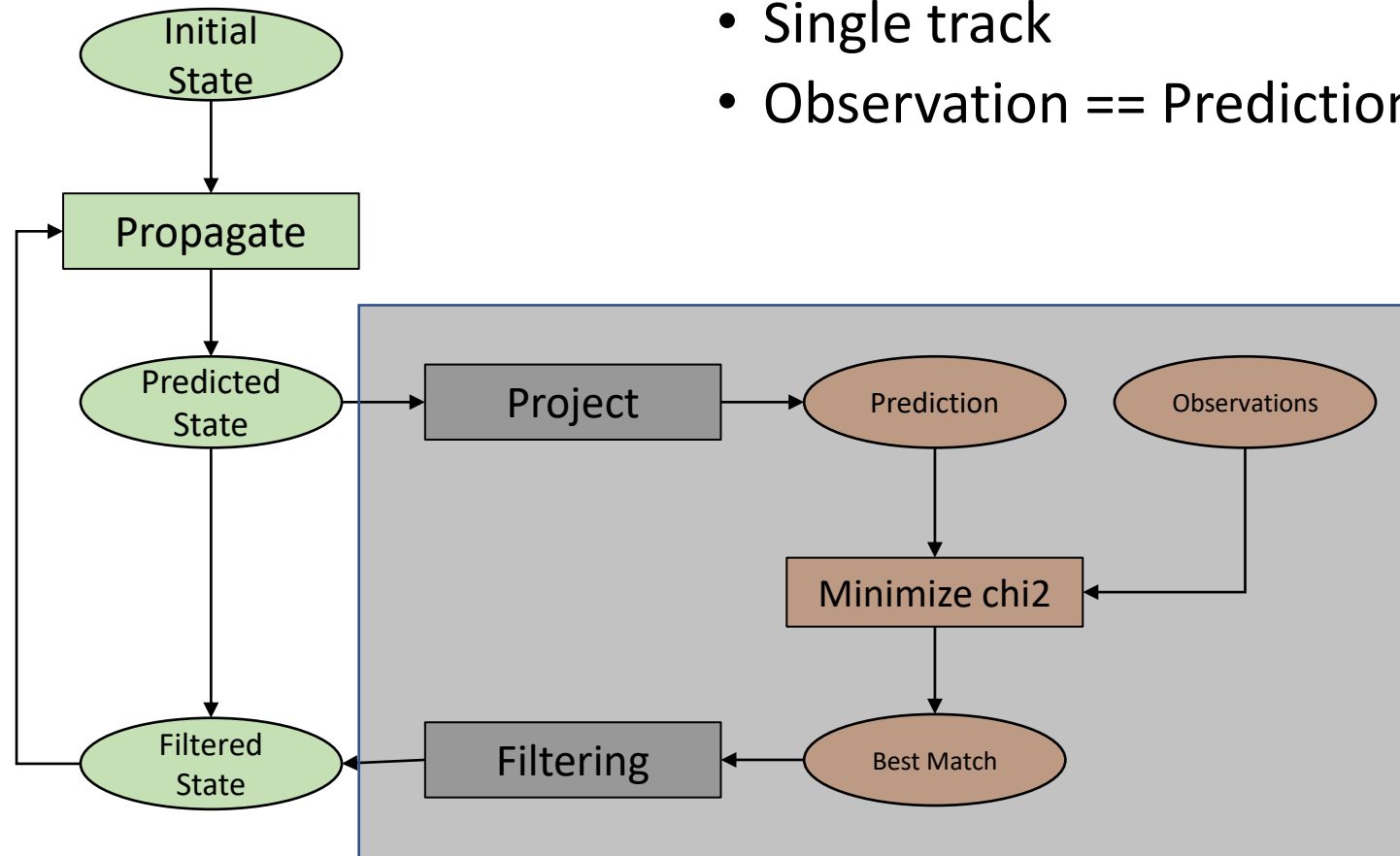
# Kalman Filter: Check 3

- We disentangle «Propagation» from other steps using:
  - Single track
  - Observation == Prediction



# Kalman Filter: Check 3

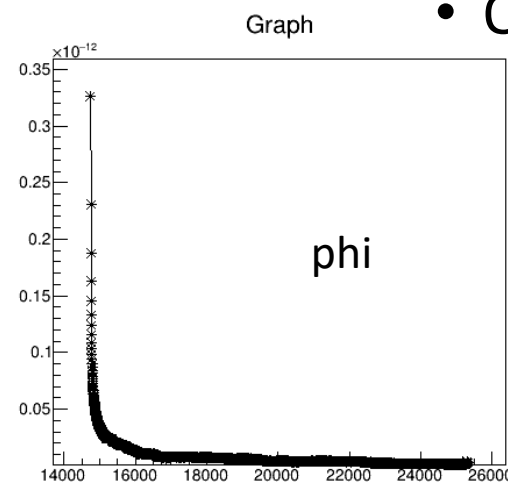
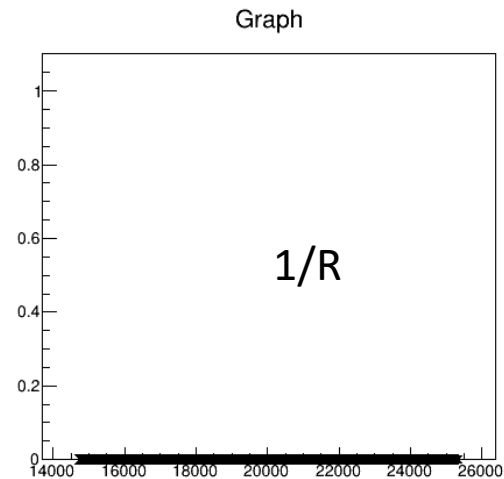
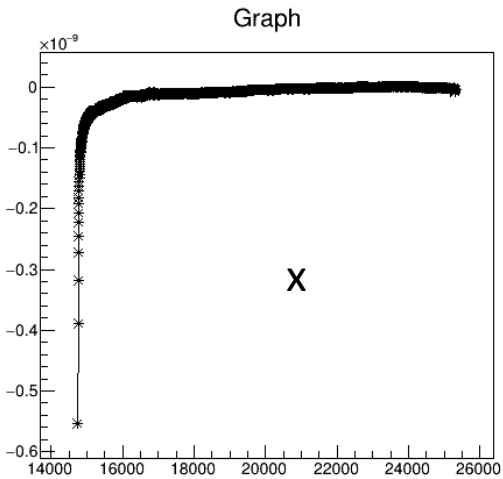
- We disentangle «Propagation» from other steps using:
  - Single track
  - Observation == Prediction



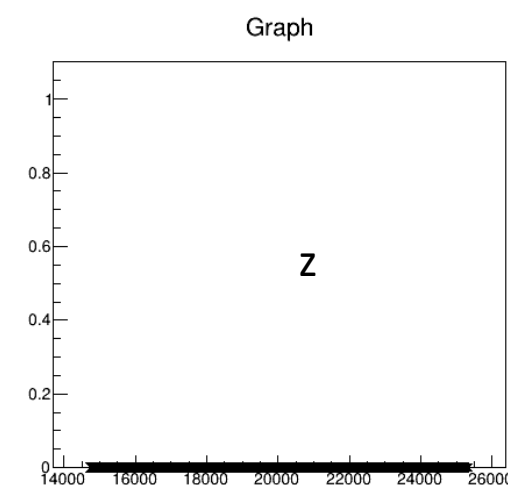
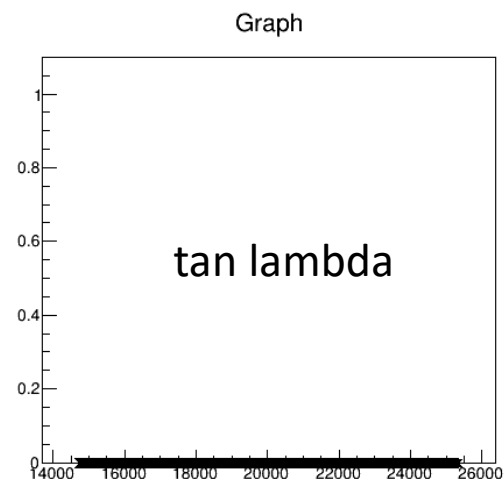
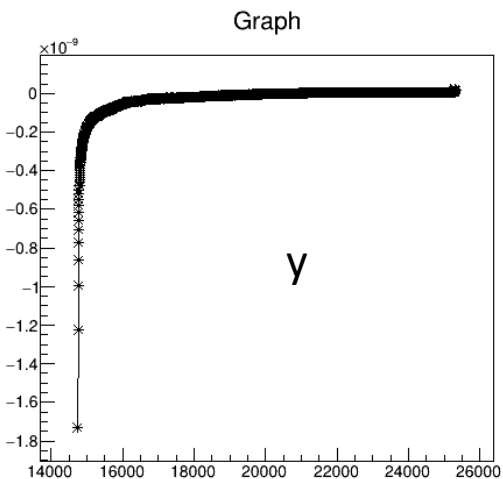
# Kalman Filter: Check 3

- We disentangle «Propagation» from other steps using:

- Single track
- Observation == Prediction



Residual: between true state and predicted (smoothed) state as function of Z

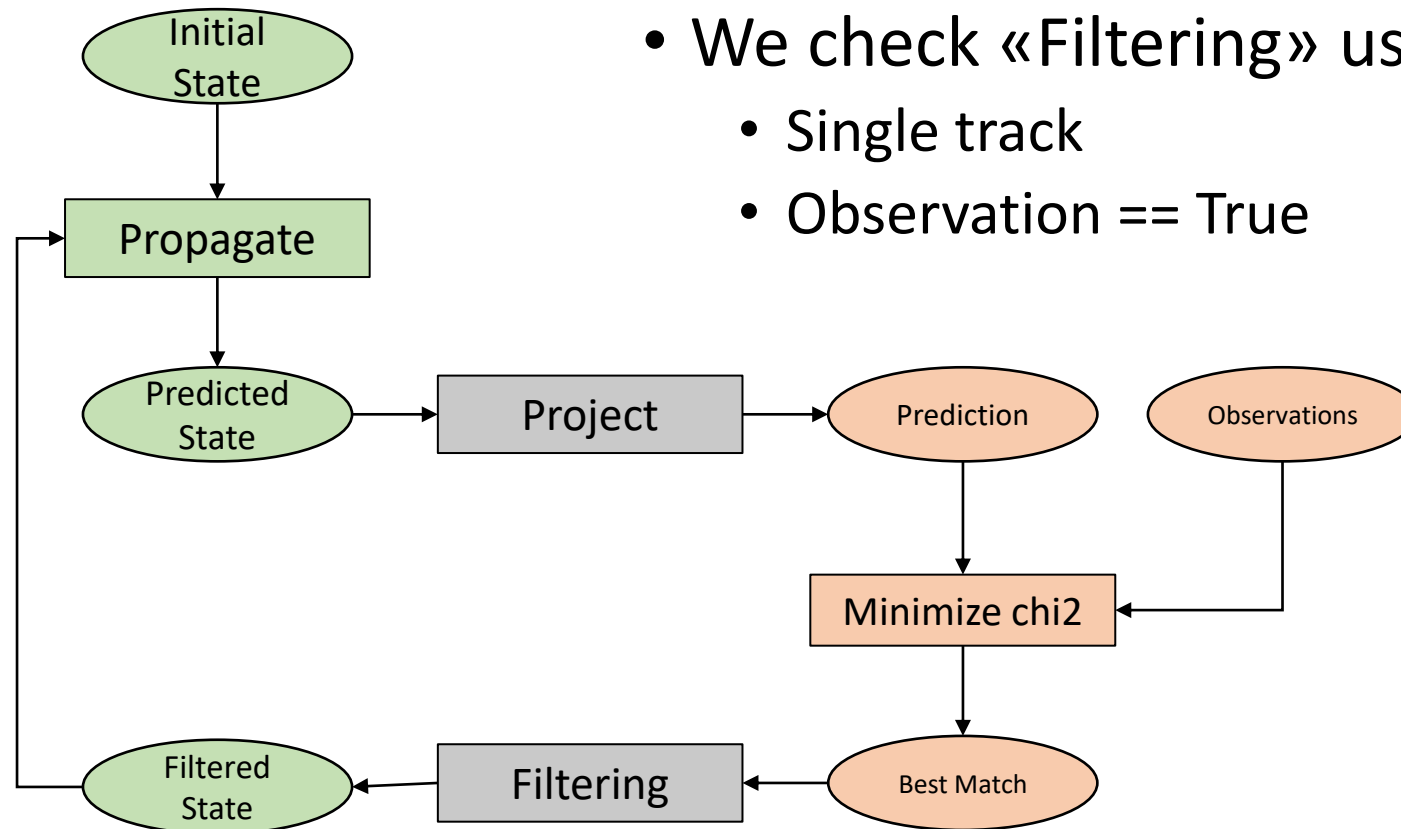


Conclusions:

- residual in x and y due to residual in phi
- residual in phi due to machine accuracy

# Kalman Filter: Check 4

- We assume «Projection» works properly
- We check «Filtering» using:
  - Single track
  - Observation == True



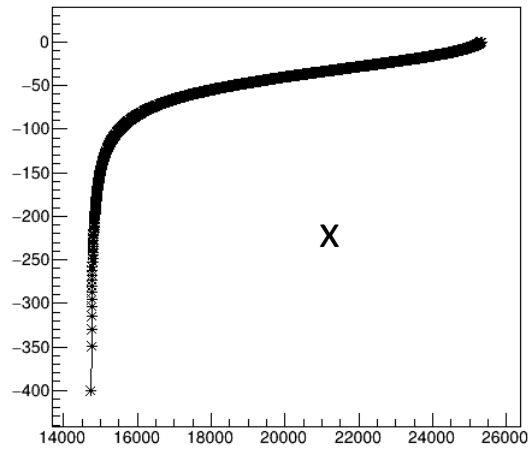
# Kalman Filter: Check 4

- We disentangle «Filtering» from other steps using:

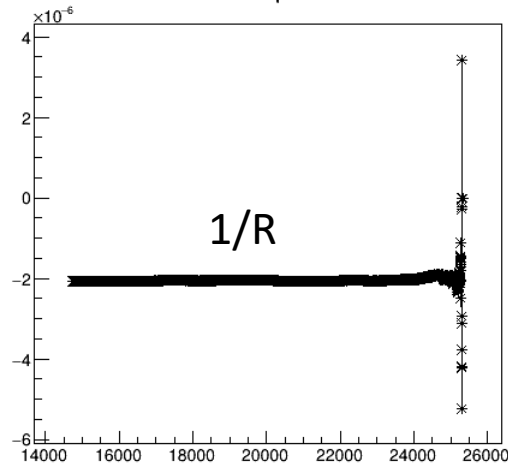
- Single track

- Observation == Prediction + smearing

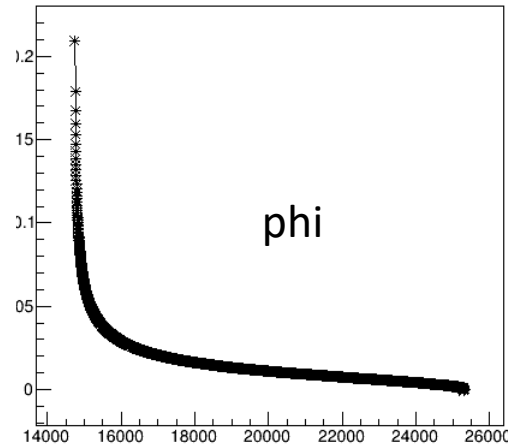
Graph



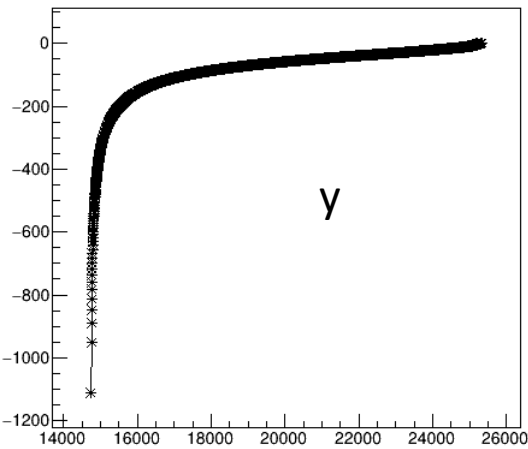
Graph



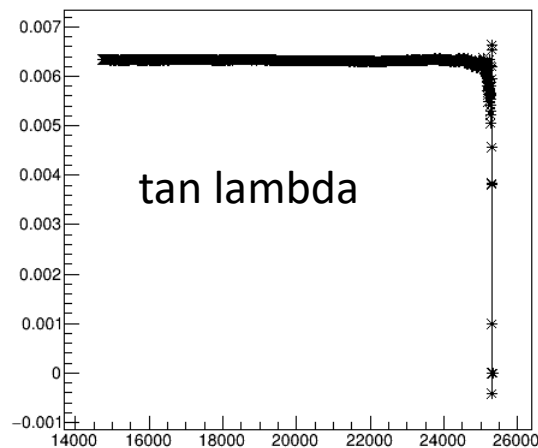
Graph



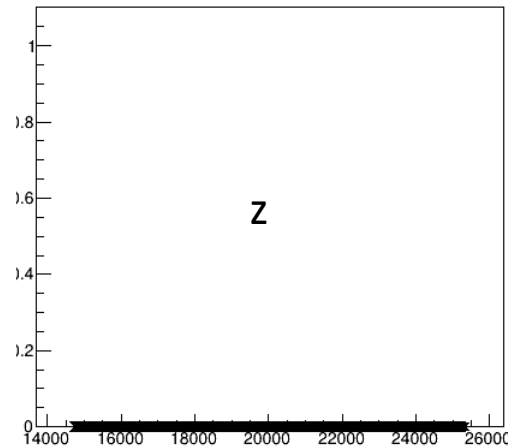
Graph



Graph



Graph



Questions:

- $\tan \lambda$  and  $1/R$  not centered to zero: why?
- $\phi$ ,  $x$ ,  $y$  are drifting: why?