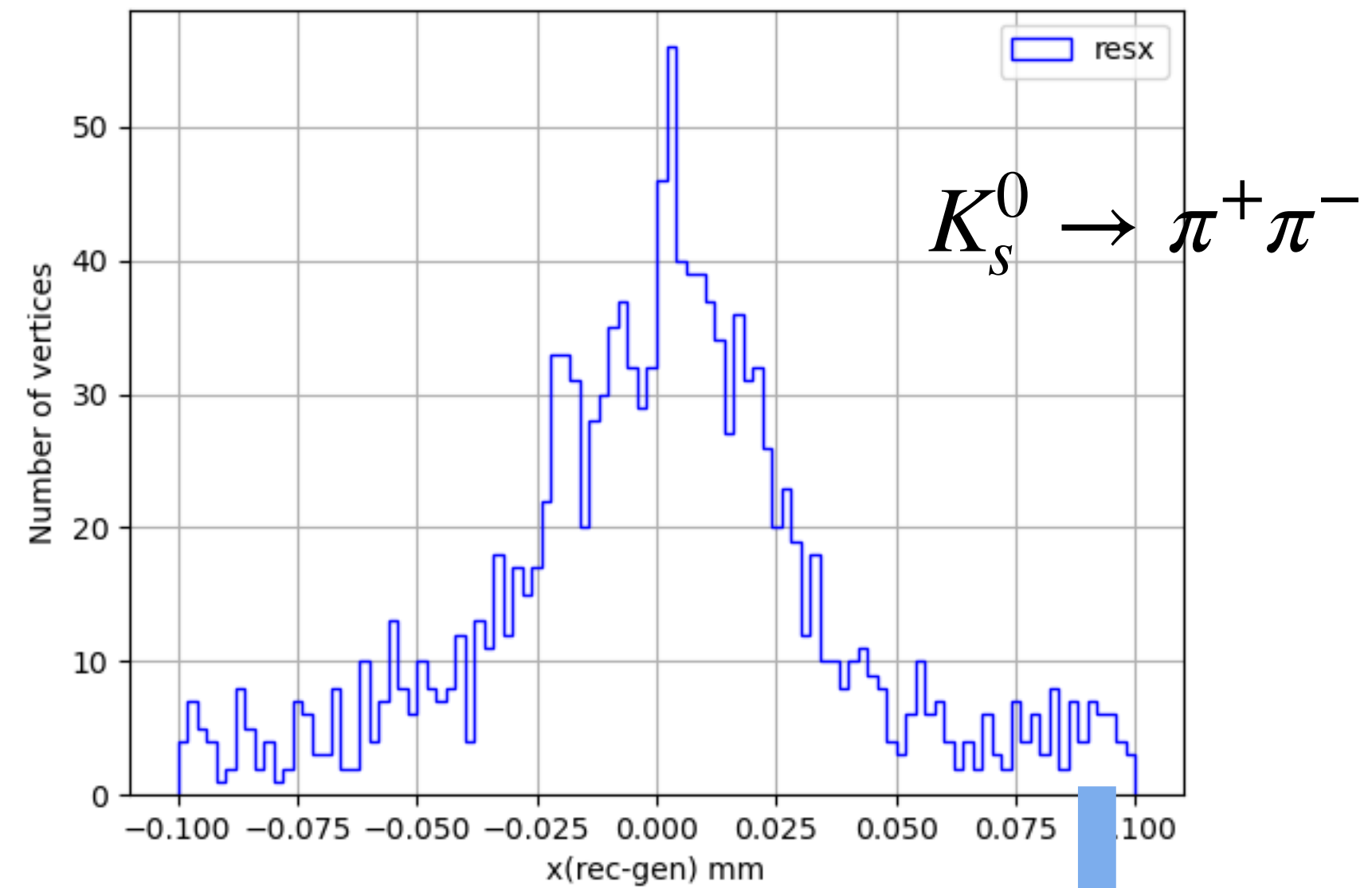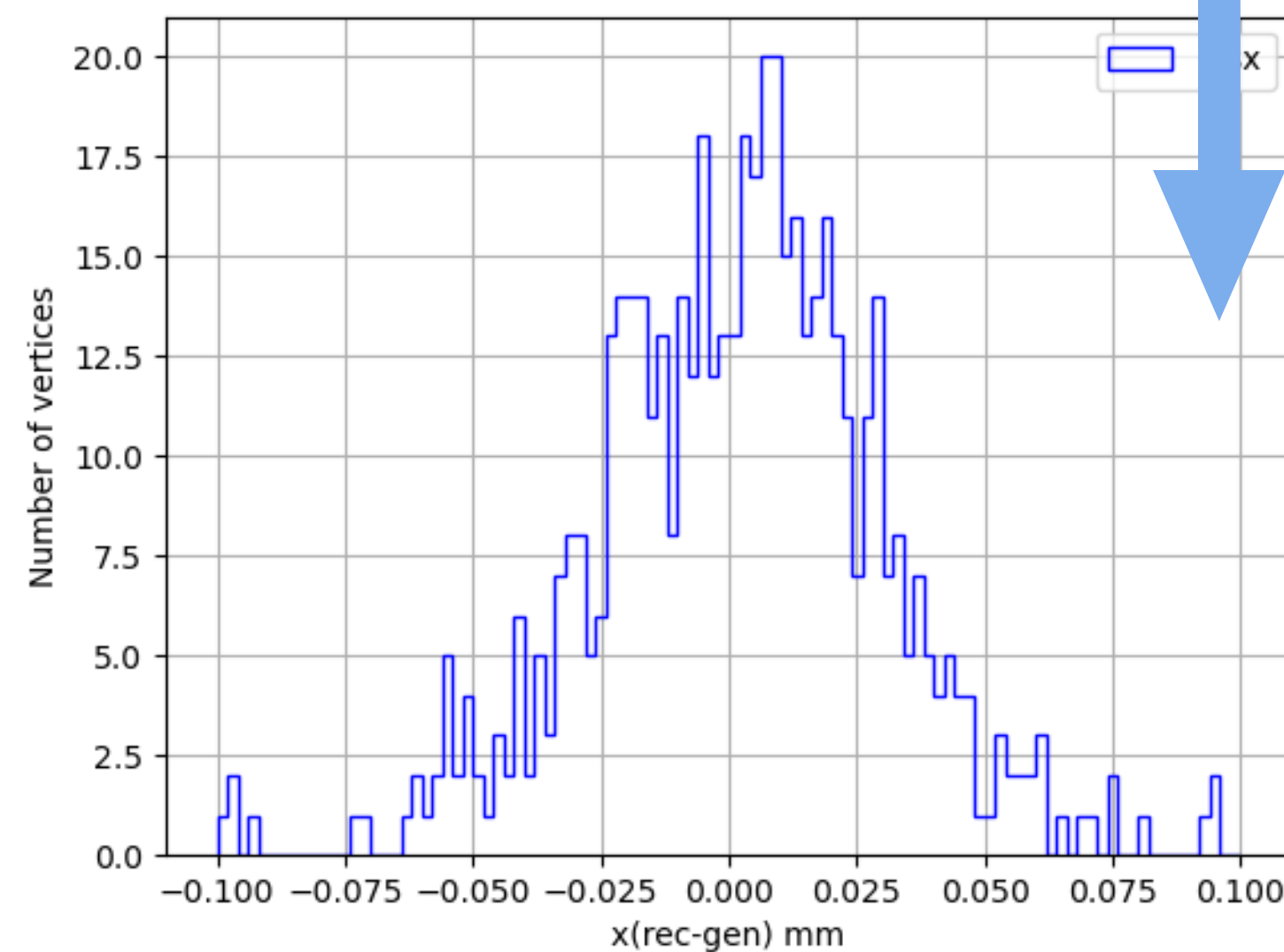# Secondary-vertex

C.Zhang/20Dec2024

Vertices in exclusive decay

- The target hadron and its decay chain are specified, it means the number of tracks involved in the reconstruction is known

  - Invariant mass, PID and expected distance-of-flight simplify the task further

- Tried to test the algo. with particle gun $B^+ \to \pi^0 \pi^+ \bar{D}^0$. But current SW doesn't record truth information for tertiary decays when the generator is set to be particle-gun

  - In most cases b-hadron produce a tertiary vertex because of b-c decay chain

  - Results cannot be understood

- Back to $K_s^0 \to \pi^+ \pi^-$ events

 - Ask secondary vertex R<15 mm

$K_s^0 \to \pi^+ \pi^-$

R < 15 mm

Apart from the missing first hit issue, there are another facts that worsen the precision of secondary-vertex

Inclusive secondary-vertex reconstruction in jet

- No prior assumption about the vertex is available. The main focus lies in identifying the tracks that originate from a vertex

- Particle-gun shoots a pair to left from (0,0,0), and the other pair to right from (x,0,0), where x=2,4,6,8 mm

seed position (no fit)
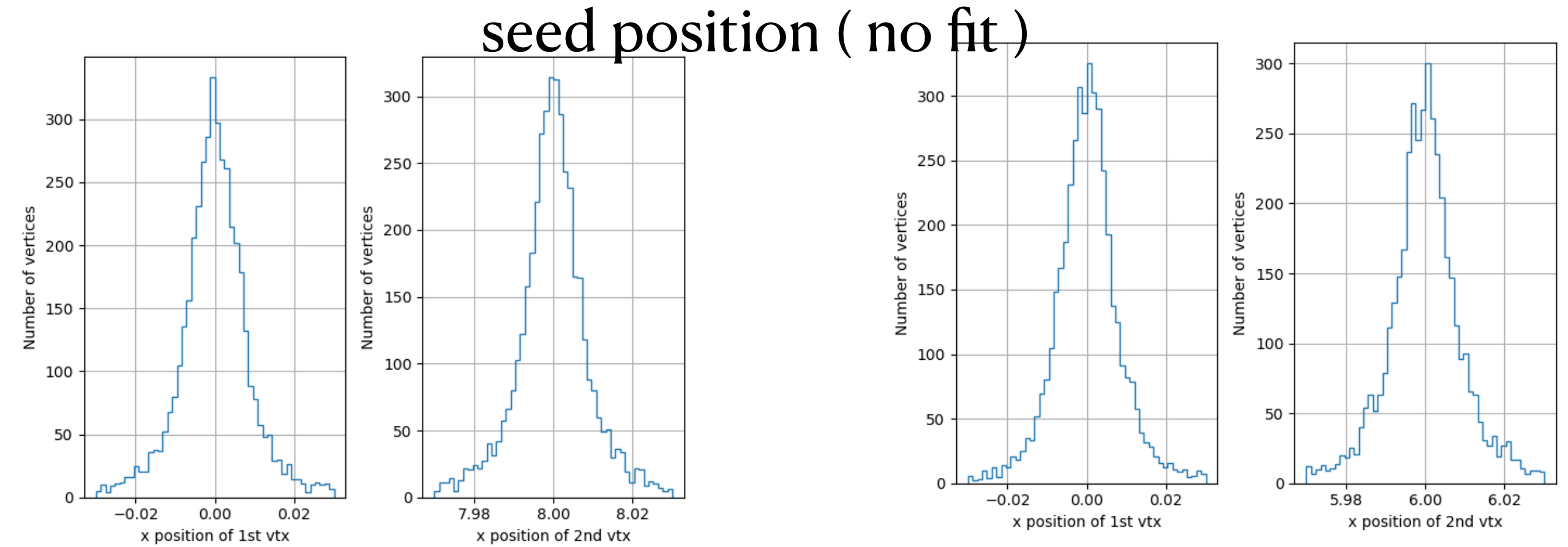
Number of reconstructed vertices
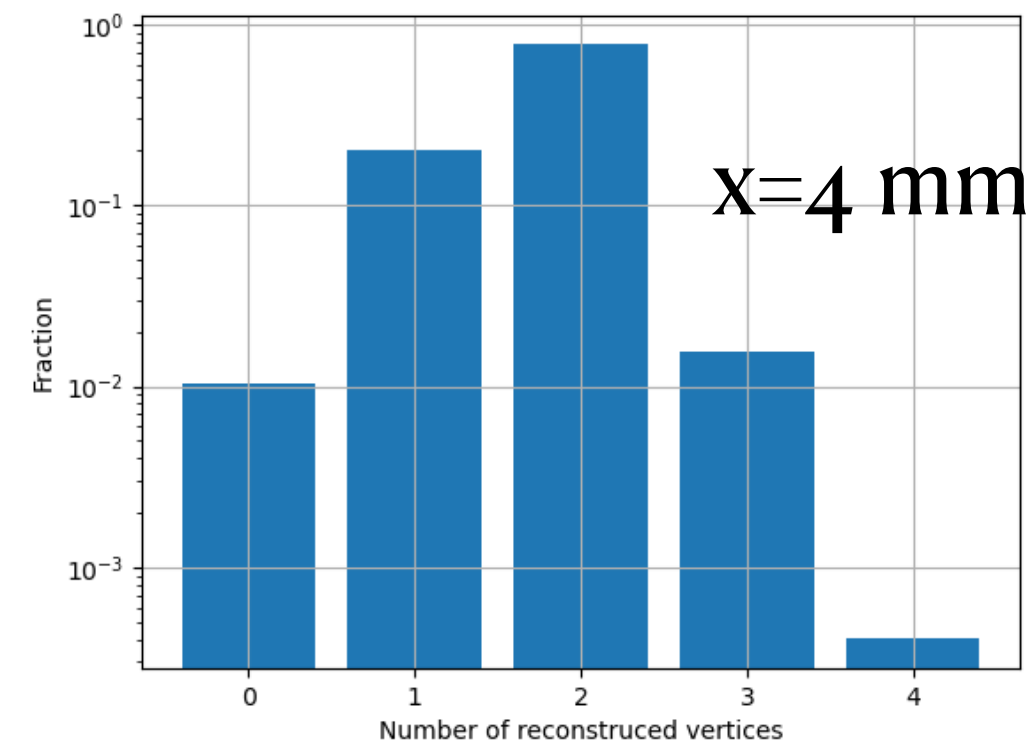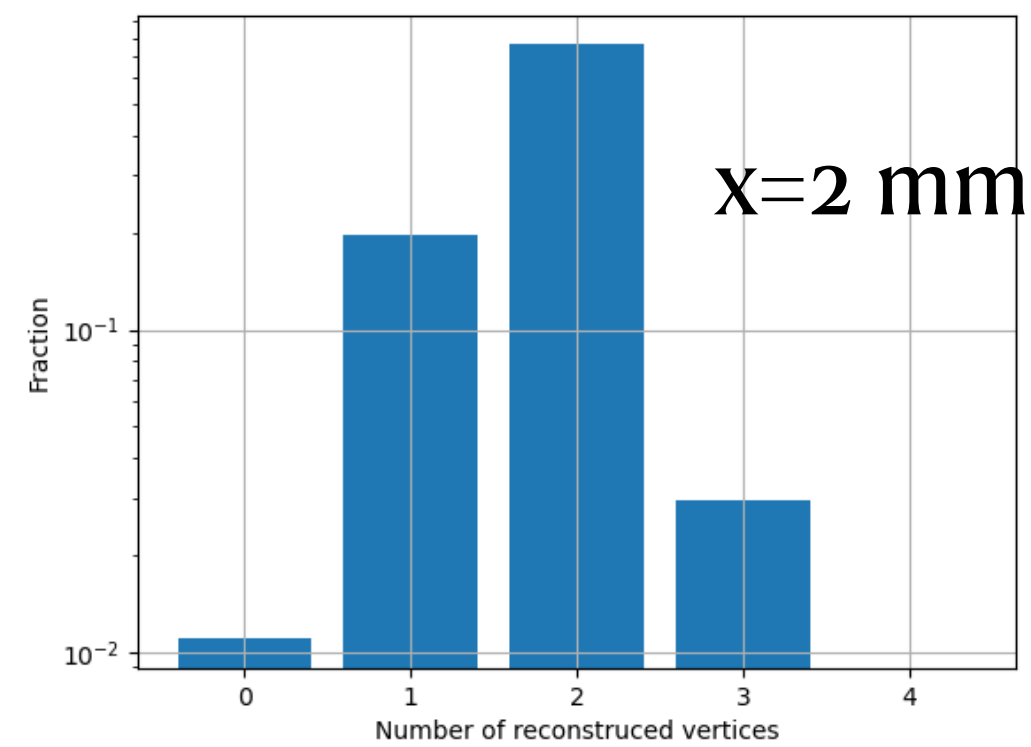
Number of tracks associated with a vertex

3