

# In-time vertexing with INTT (Final plots for ITTF)

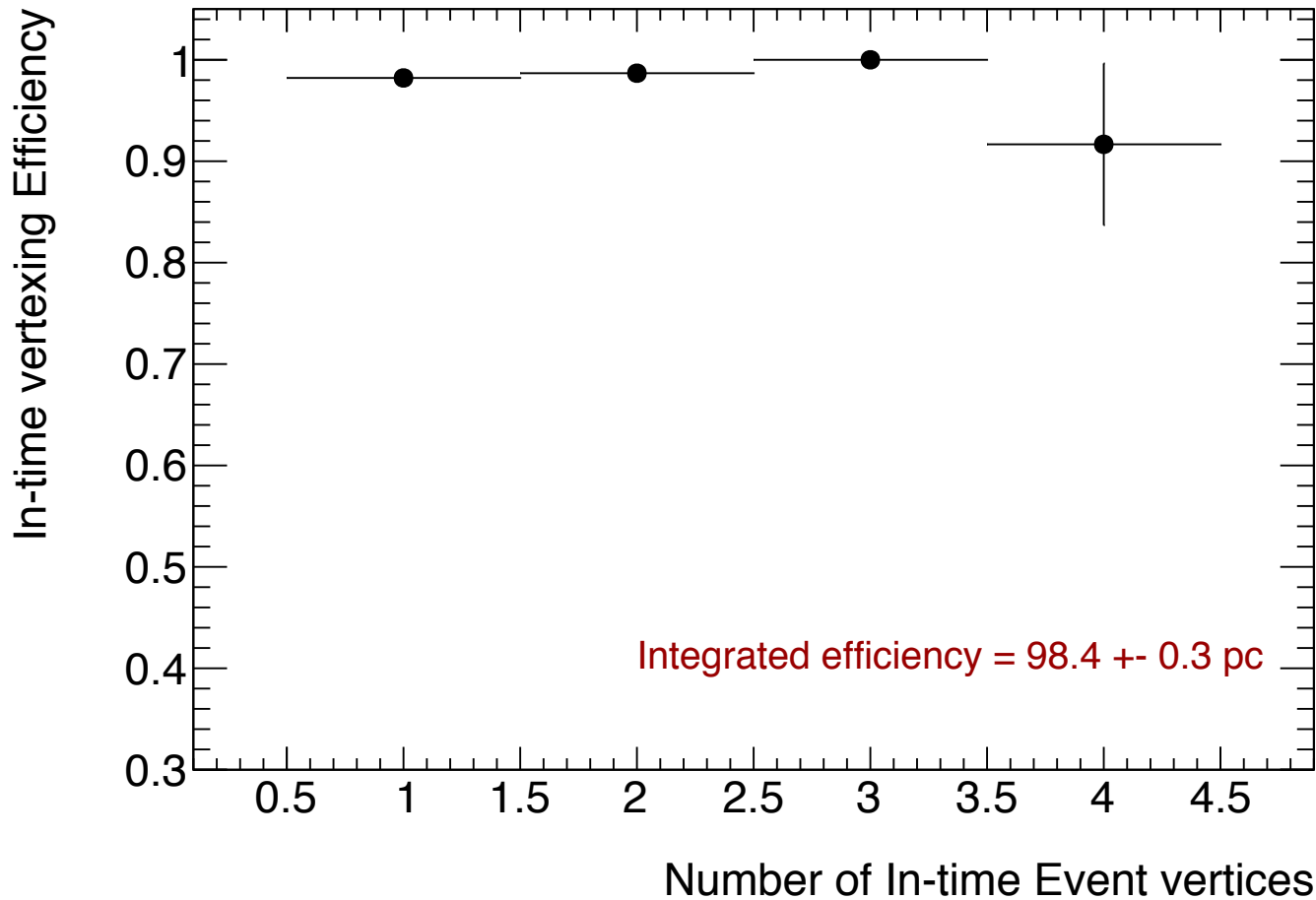
Sookhyun Lee (Iowa State University)

December 1, 2018



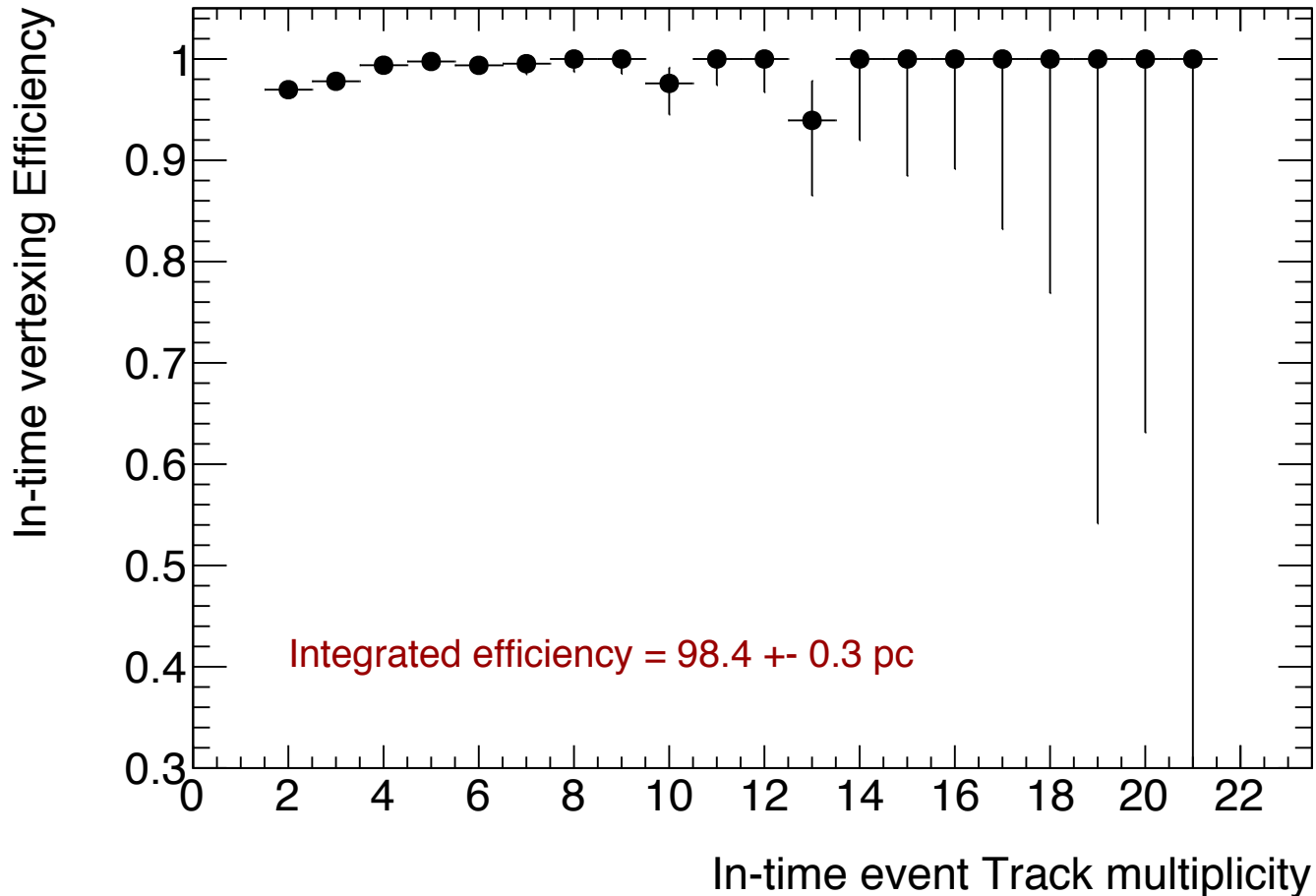
$$\text{Efficiency} = \frac{\# \text{ of vertices tagged as in-time \&\& } |\Delta\text{vertex}| < 500\mu\text{m}}{\# \text{ of true in-time vertices within } [-20\text{ns}, 80\text{ns}] \text{ time window}}$$

# In-time vertex id Efficiency



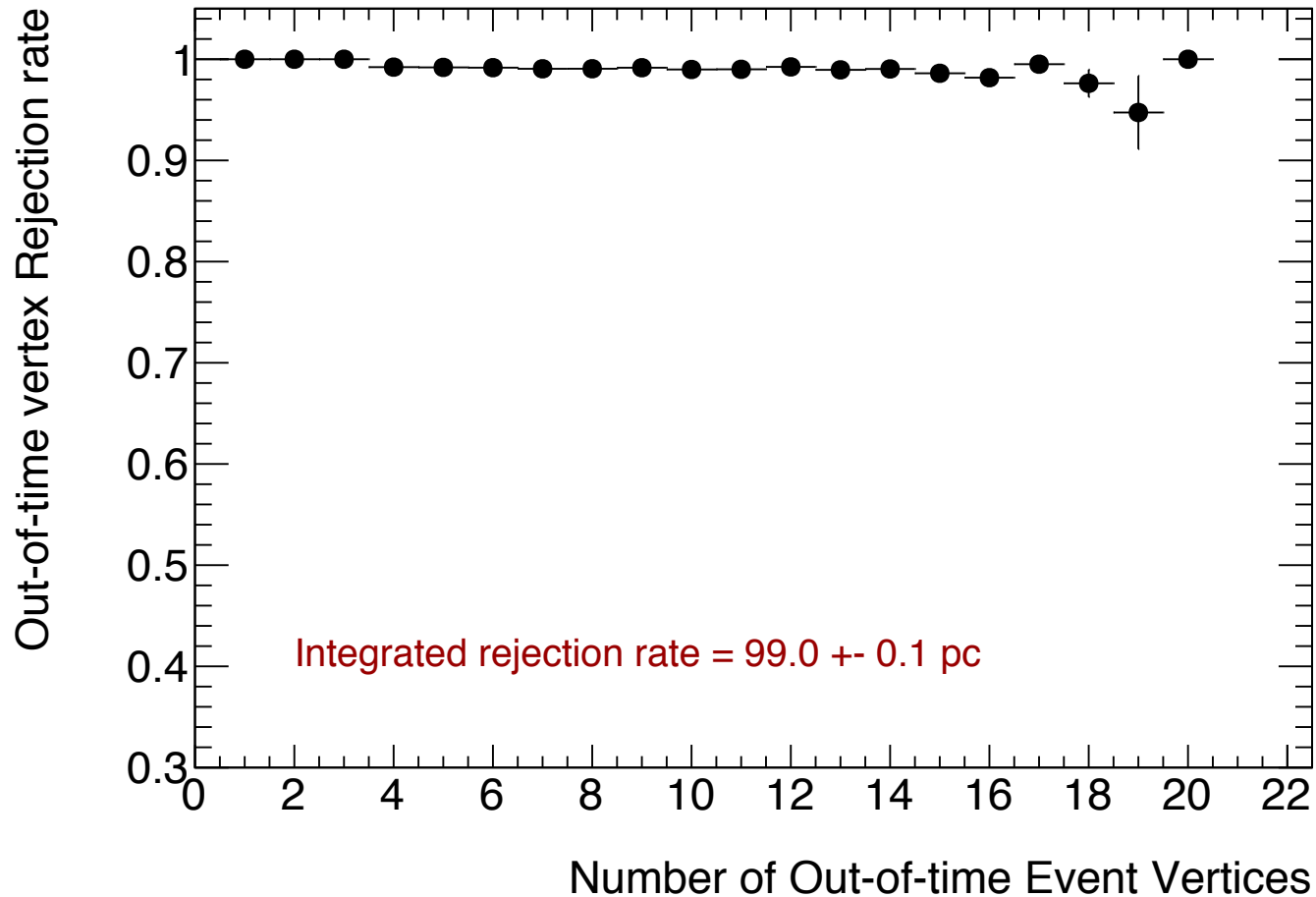
$$\text{Efficiency} = \frac{\# \text{ of vertices tagged as in-time \& } |\Delta\text{vertex}| < 500\mu\text{m}}{\# \text{ of true in-time vertices within } [-20\text{ns}, 80\text{ns}] \text{ time window}}$$

# In-time vertex id Efficiency



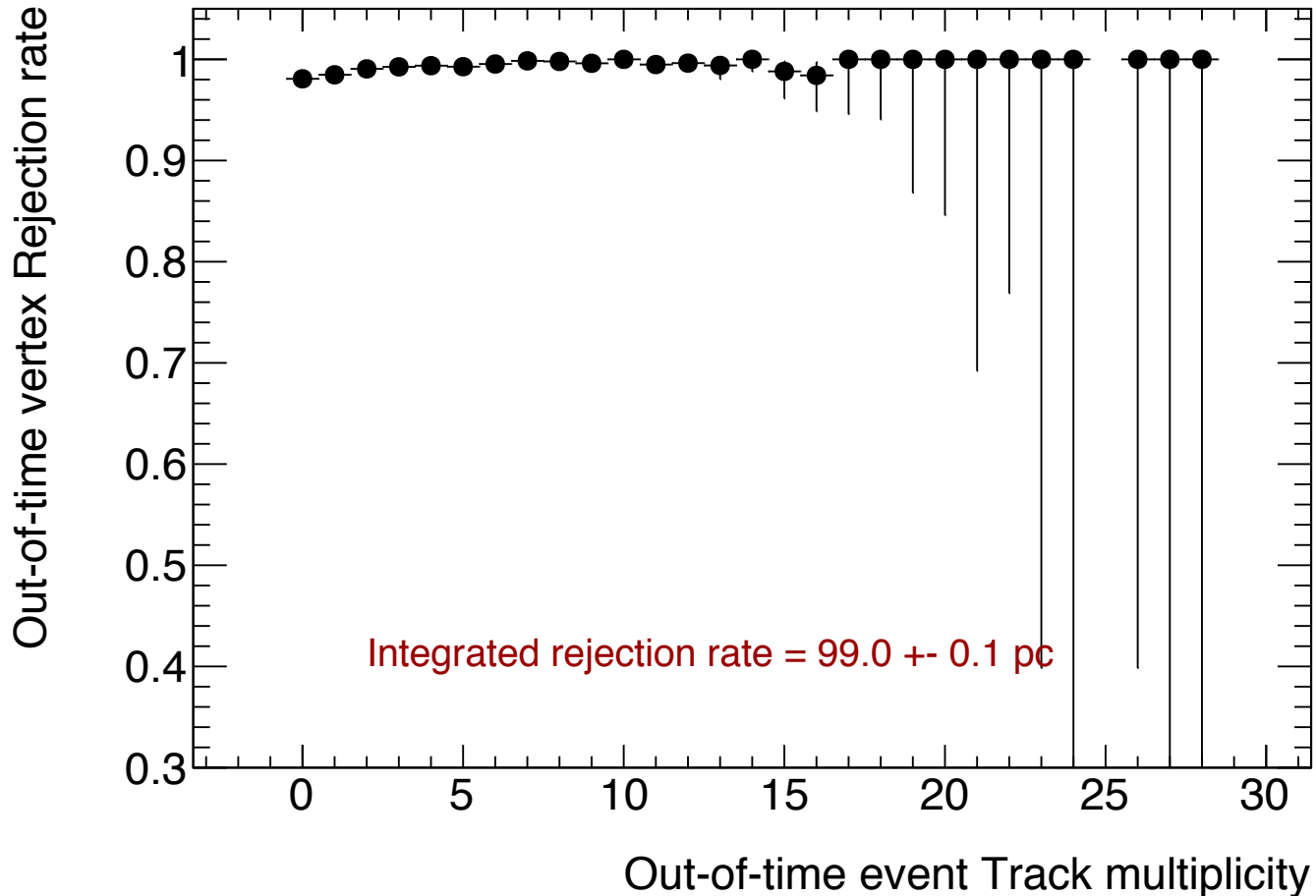
$$\text{Rejection factor} = \frac{\# \text{ of vertices tagged as out-of-time}}{\# \text{ of true out-of-time vertices outside } [-20\text{ns}, 80\text{ns}] \text{ time window}}$$

# Out-of-time vertex rejection factor



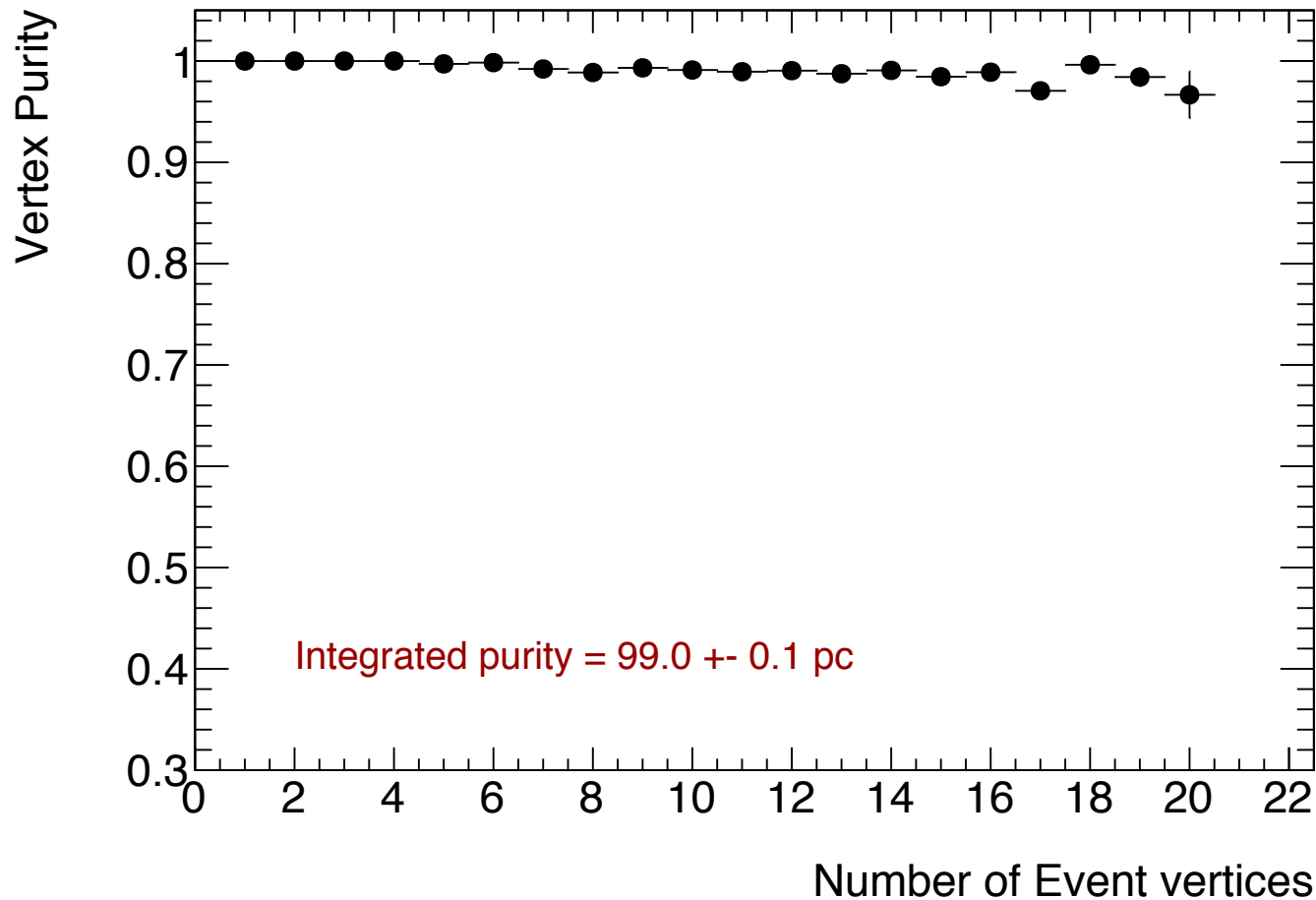
$$\text{Rejection factor} = \frac{\text{\# of vertices tagged as out-of-time}}{\text{\# of true out-of-time vertices outside } [-20\text{ns}, 80\text{ns}] \text{ time window}}$$

# Out-of-time vertex rejection factor



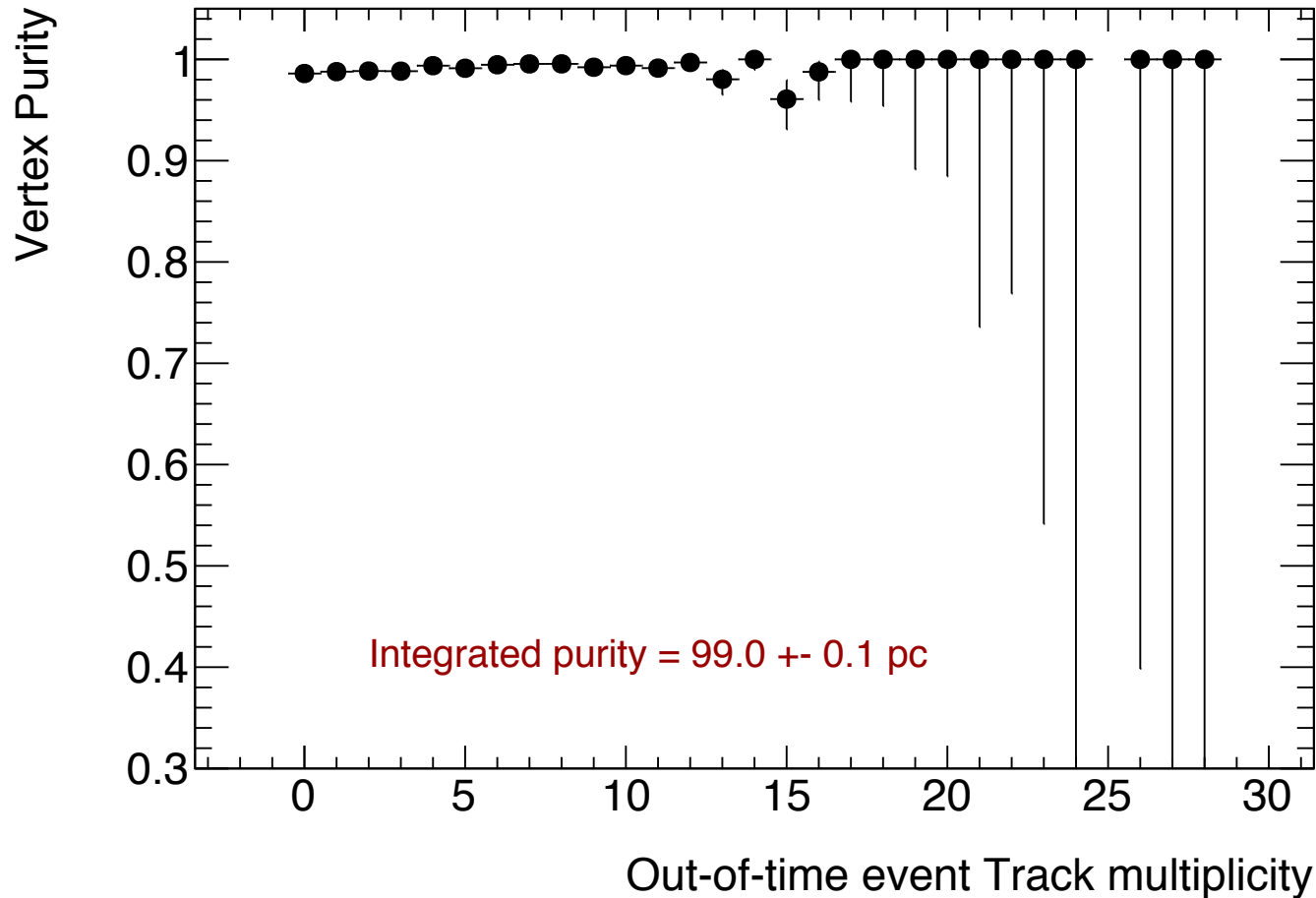
$$\text{Rejection factor} = \frac{\text{\# of vertices correctly tagged as in-time/out-of-time}}{\text{\# of true event vertices within } [-2000\text{ns}, 2000\text{ns}] \text{ time window}}$$

# Vertex timing purity

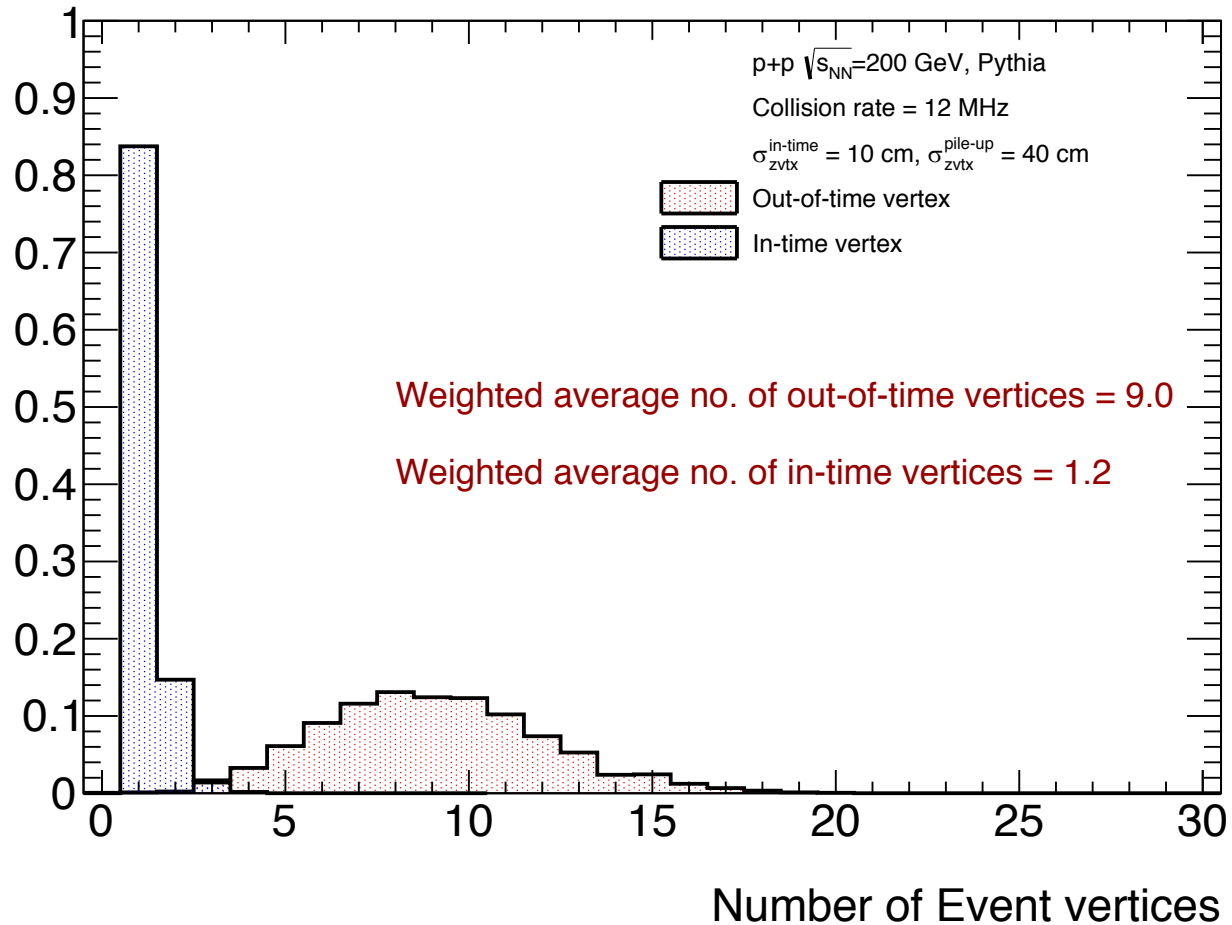


$$\text{Rejection factor} = \frac{\text{\# of vertices correctly tagged as in-time/out-of-time}}{\text{\# of true event vertices within } [-2000\text{ns}, 2000\text{ns}] \text{ time window}}$$

# Vertex timing purity

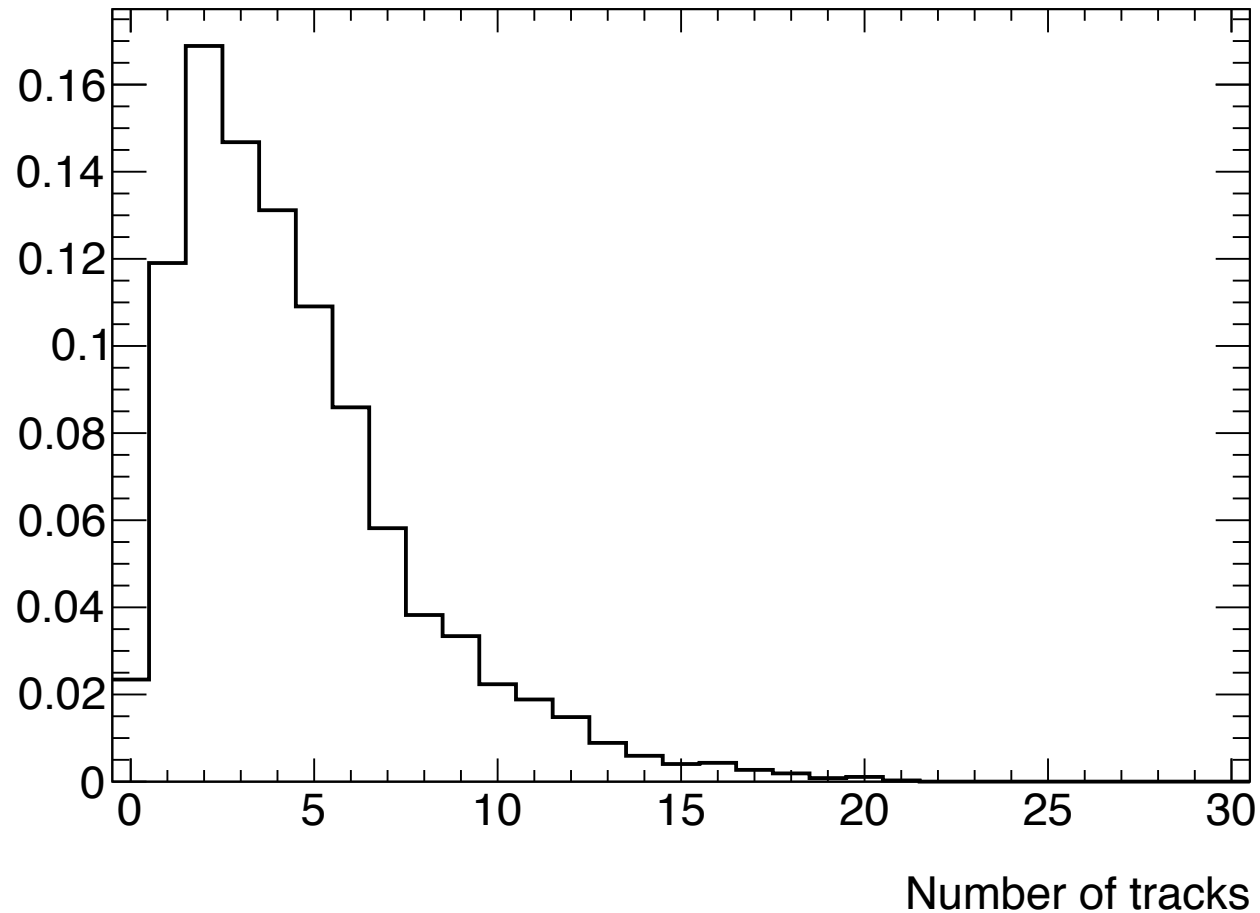


# Number of event vertices





# Number of tracks in an event



(within MVTX acceptance and true  $p_T > 0.5 \text{ GeV}/c$ )