

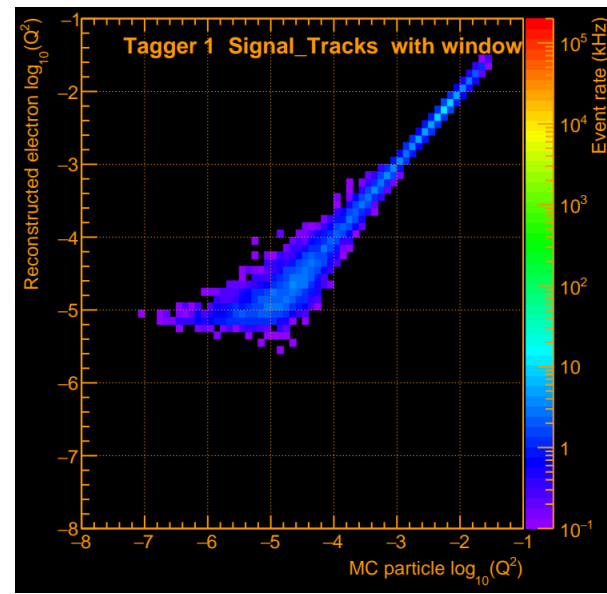
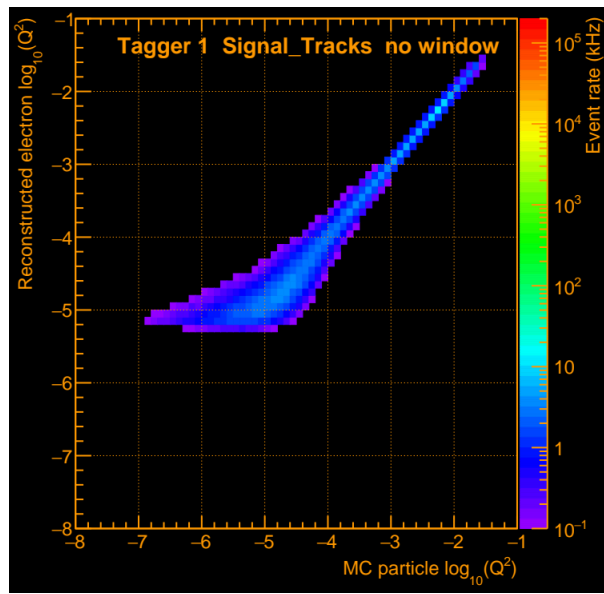
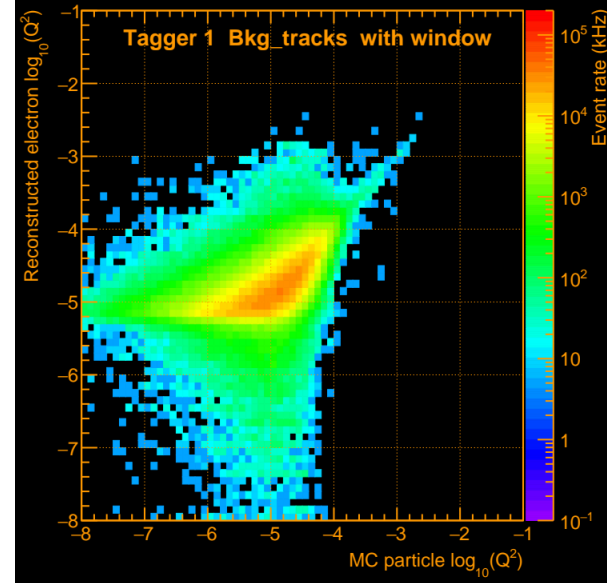
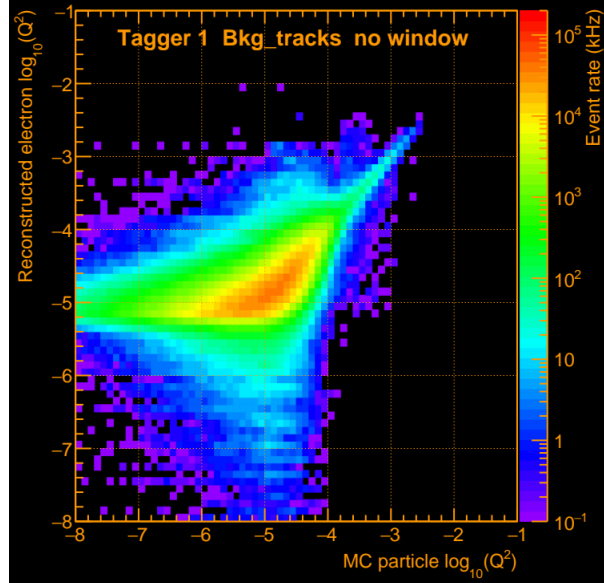


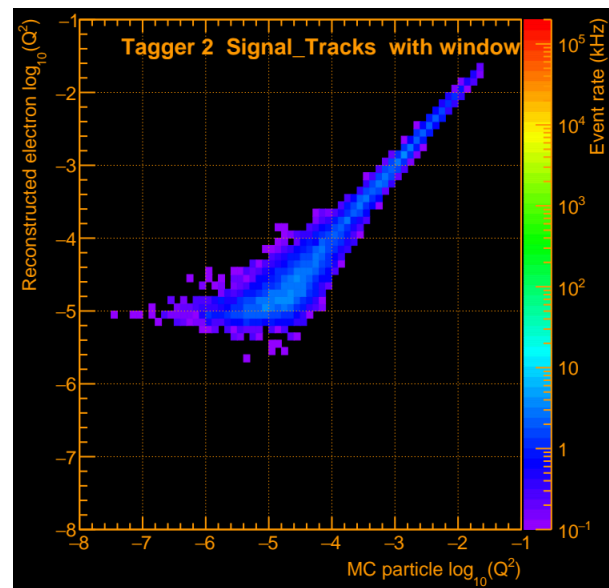
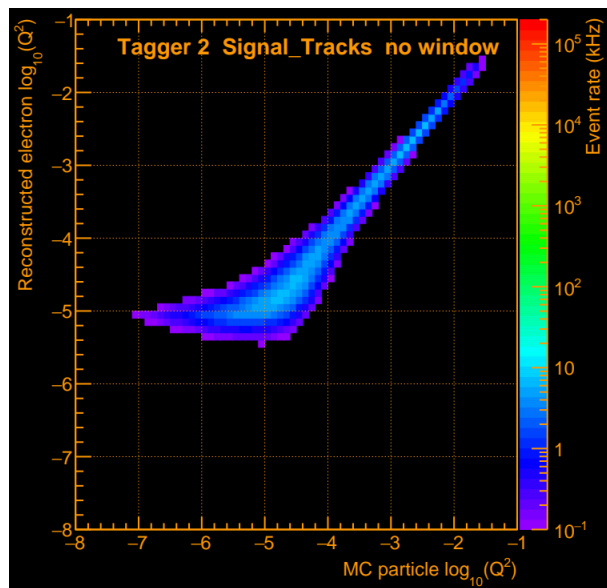
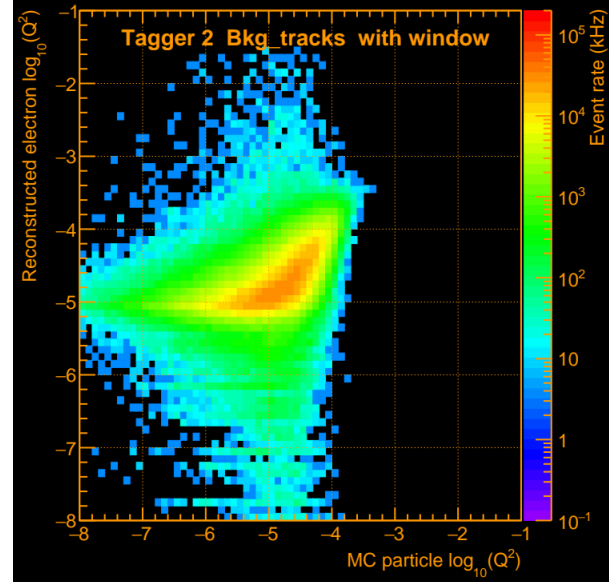
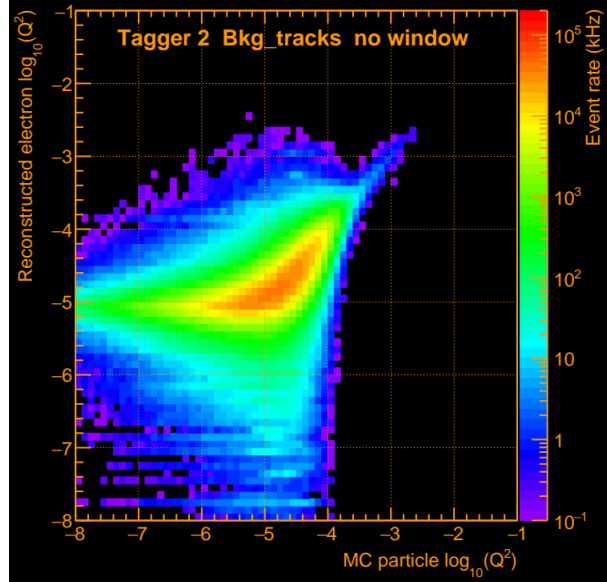
Tagger tracking

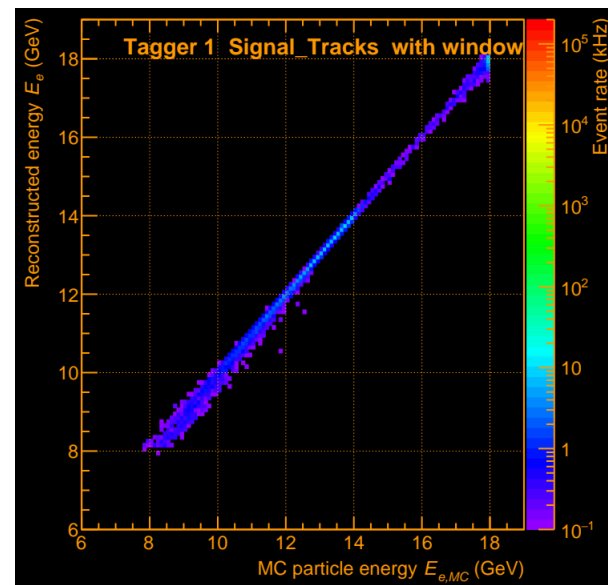
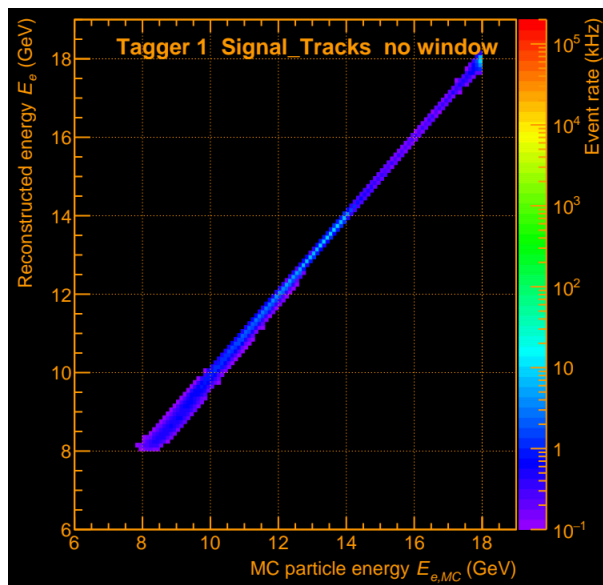
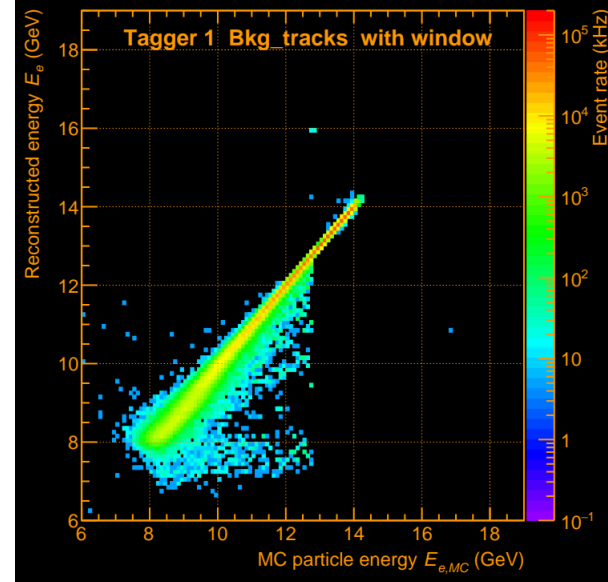
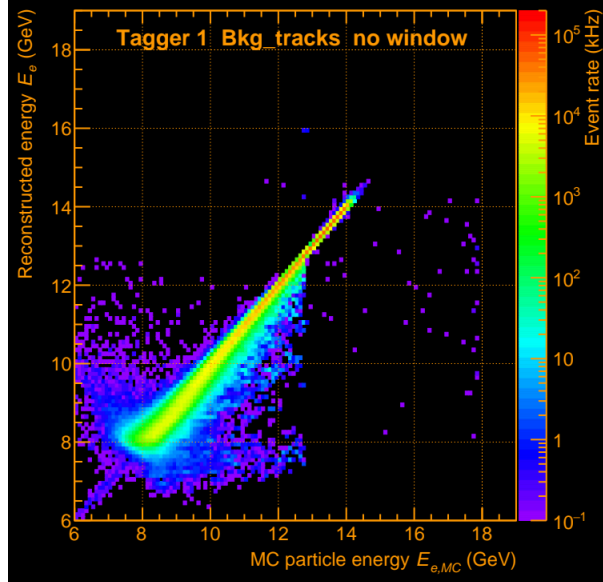
-update-
- 25/04/2023 -

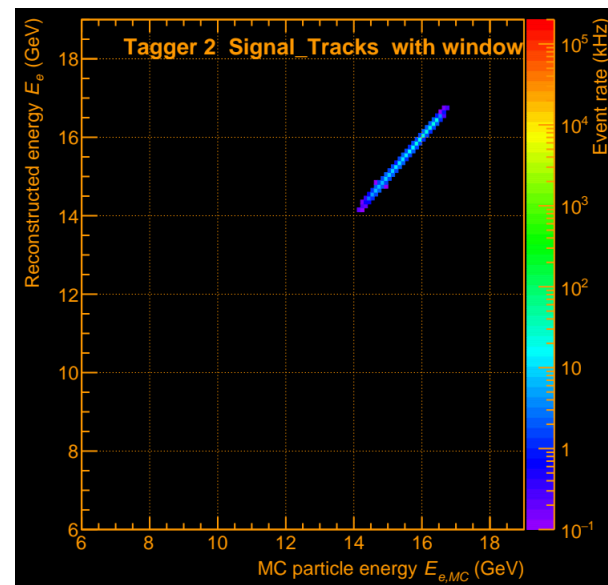
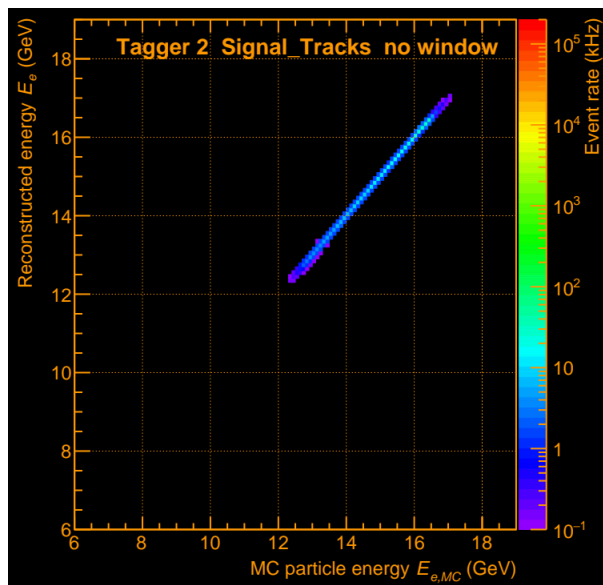
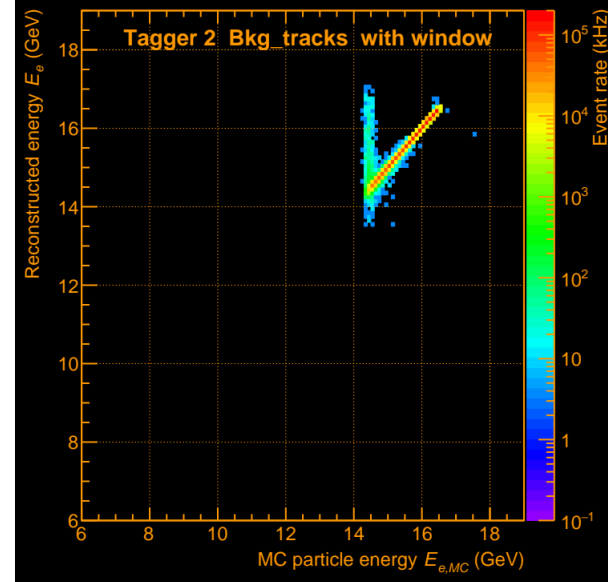
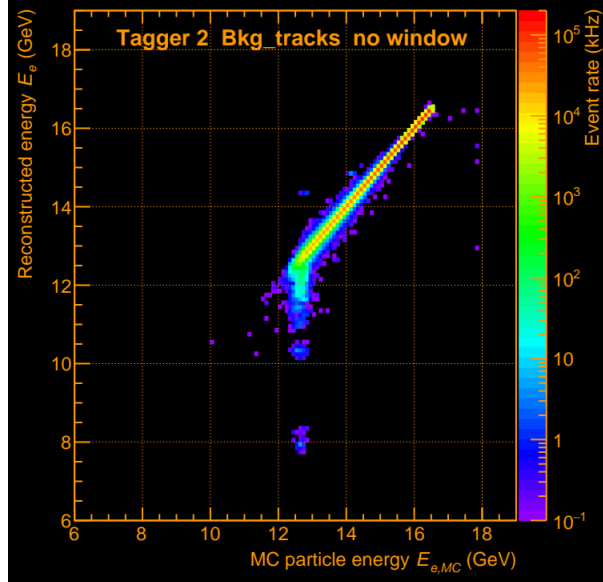
Miroslav Myska, Jaroslav Adam
CTU in Prague

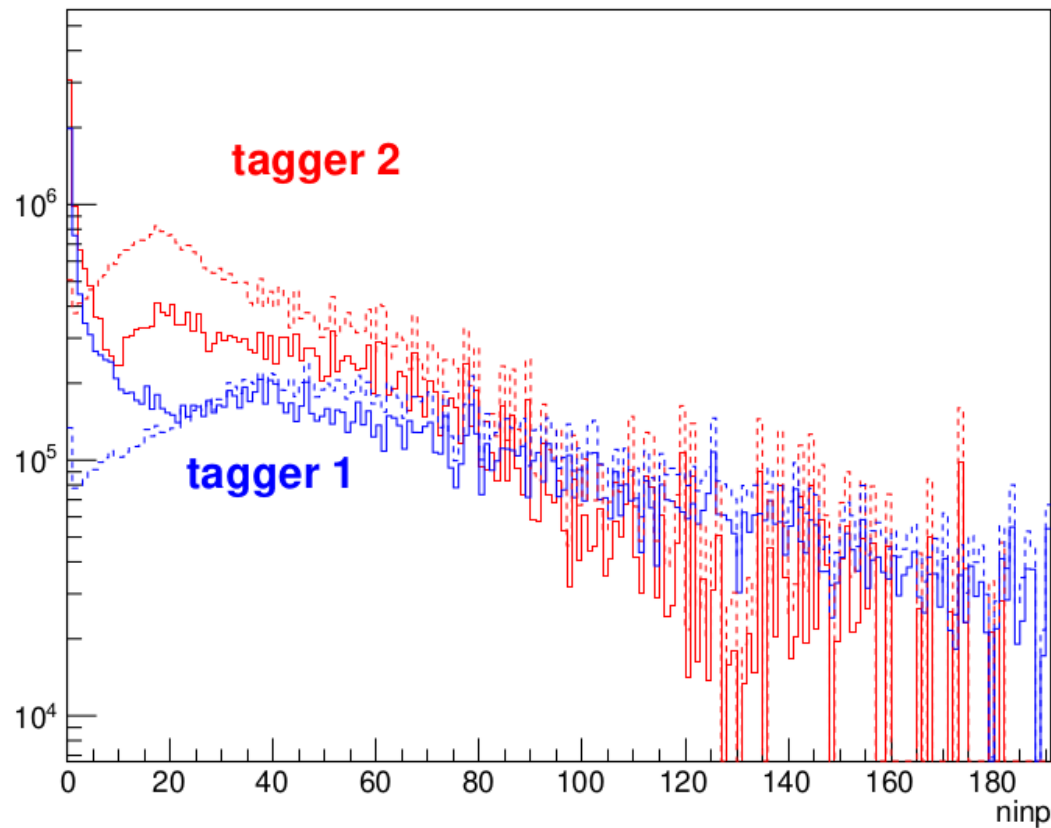
- New:
- geometry with beryllium window
 - + calorimeter behind tagger 1
 - reco-variables related to MC particle
 - plots scaled to cross section / production rate
 - to compare signal / bkg rates
- signal overrun by bremstrahlung in Tagger 2











Ninp = number of NN input tracks

$N_{inp} > X$

should filter mis-reconstructed tracks
→ unf. no significant improvement

Solid line – with Window

Dashed line – without Window

Machine learning for reconstruction in tagger detectors

- Working machine learning was developed by the group to obtain original scattered electrons from detected tracks in tagger detectors
- Input layers consists of track parameters (position and angles in x and y)
- Output layer gives full kinematics of scattered electrons p' (energy and polar and azimuthal angles)

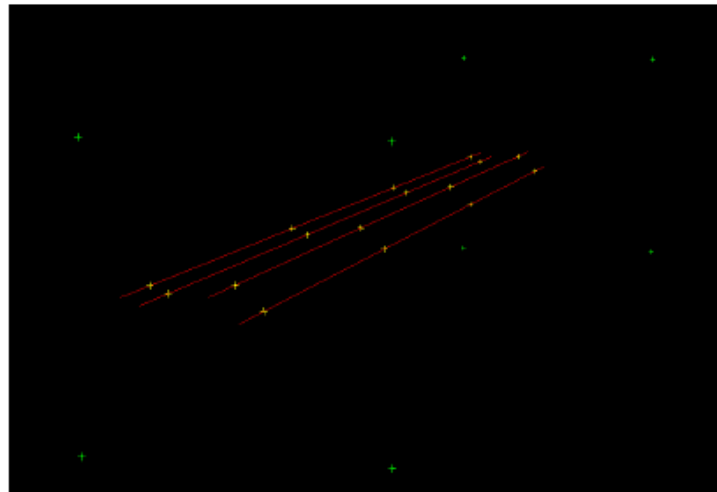


Figure: Detected tracks

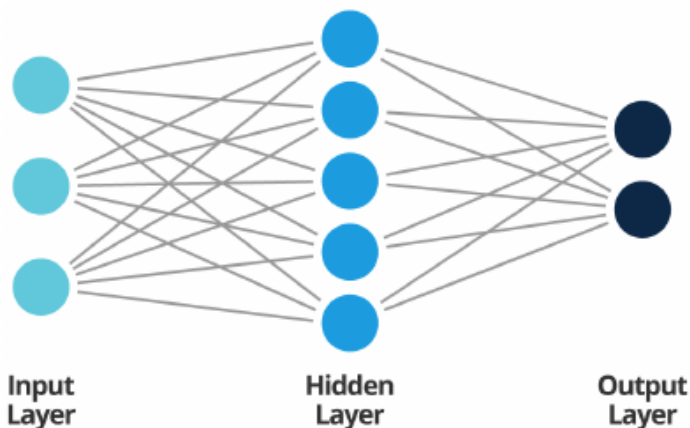


Figure: Artificial intelligence

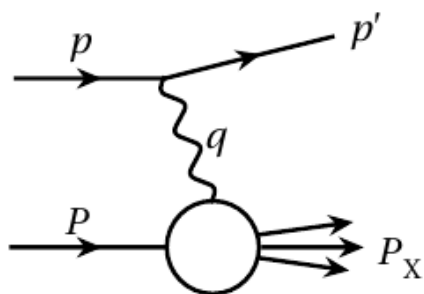
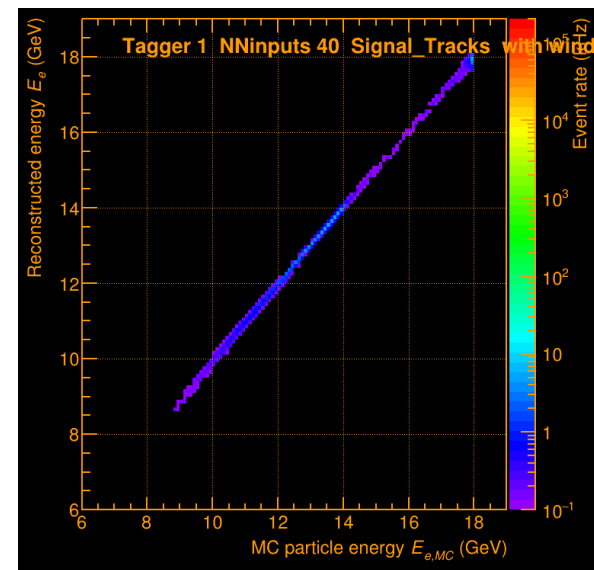
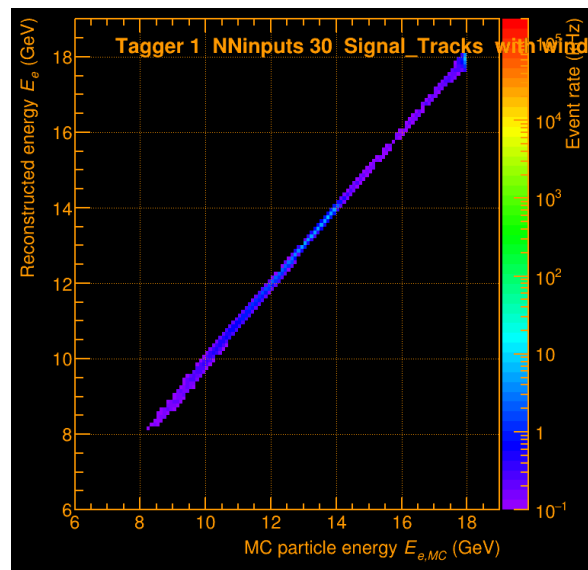
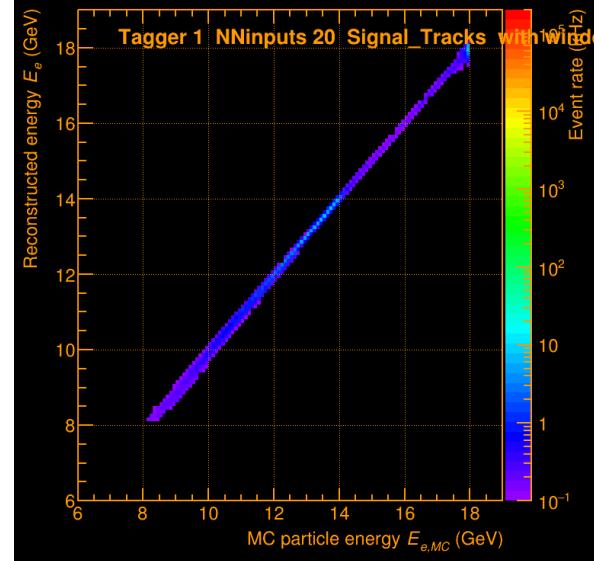
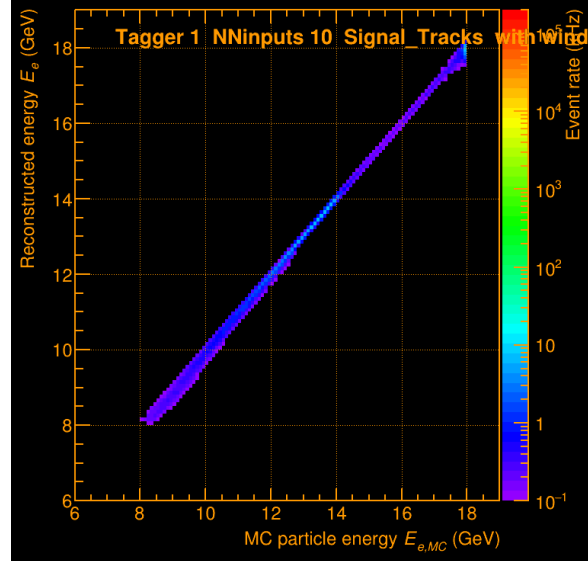
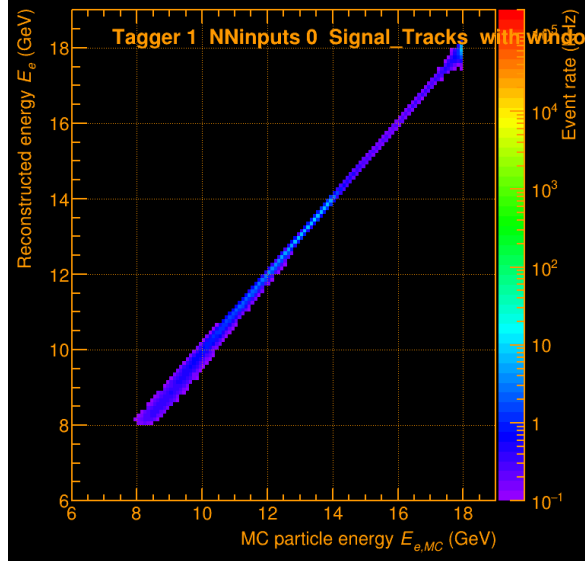
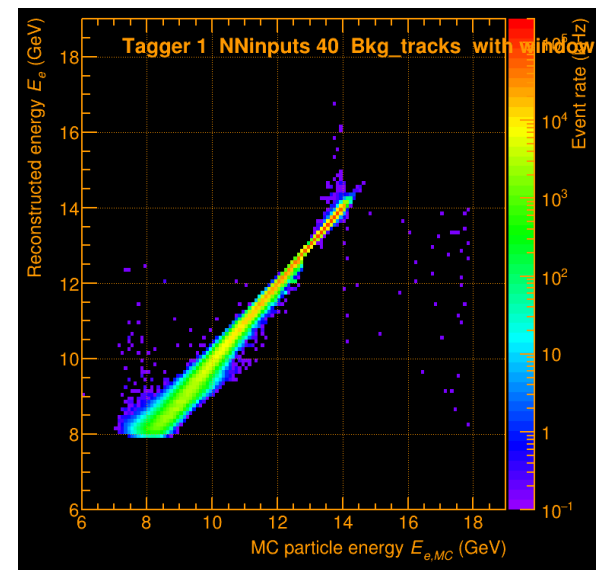
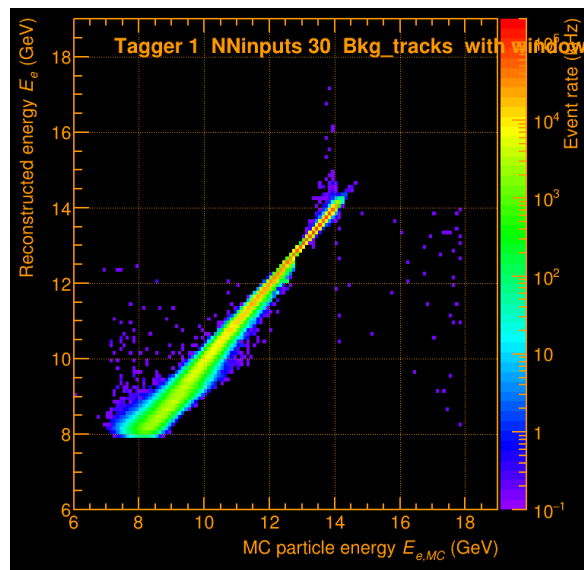
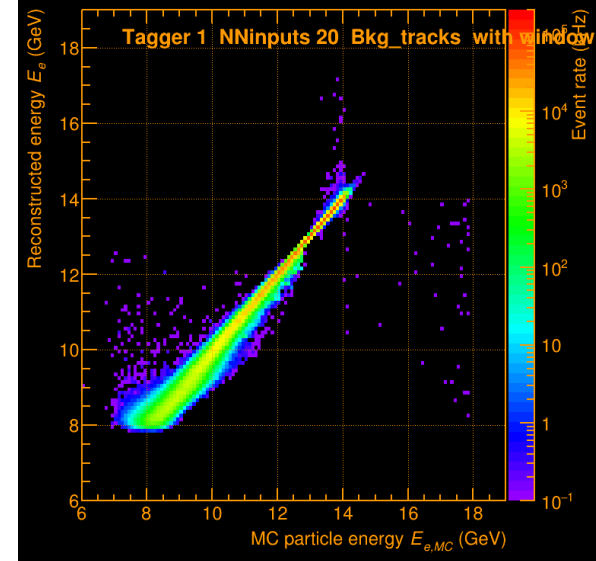
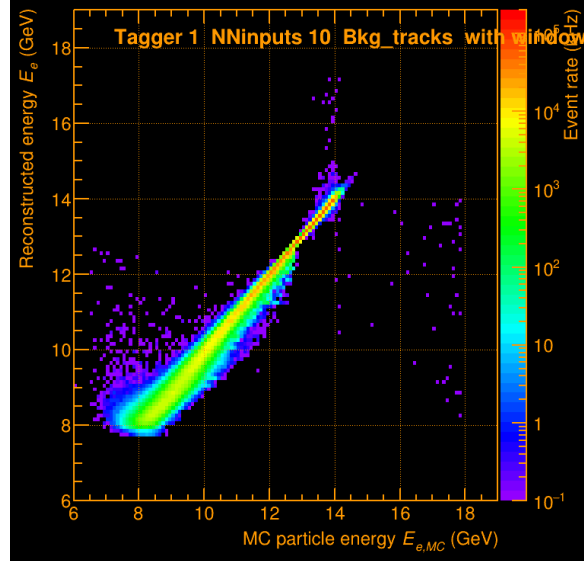
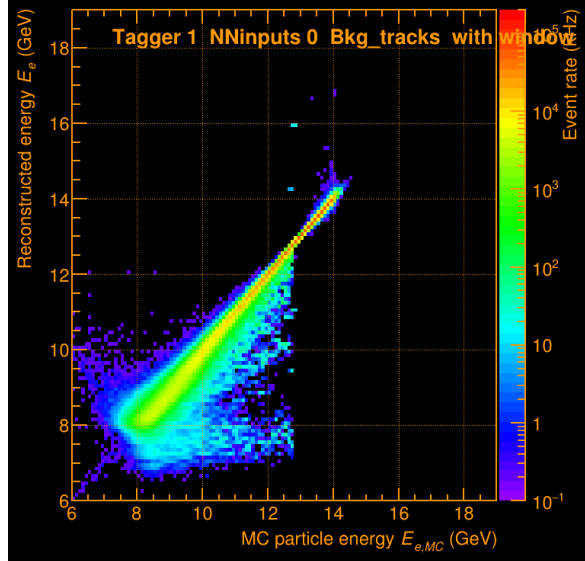
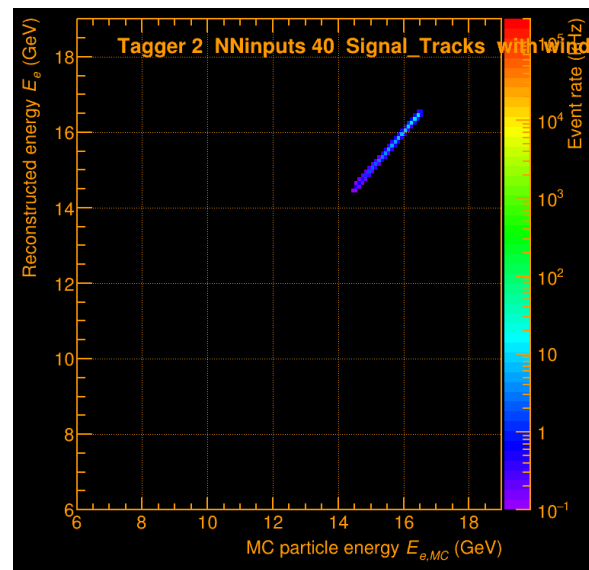
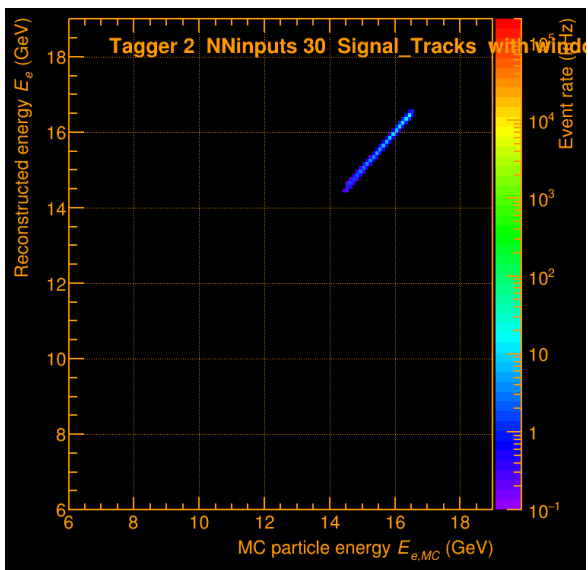
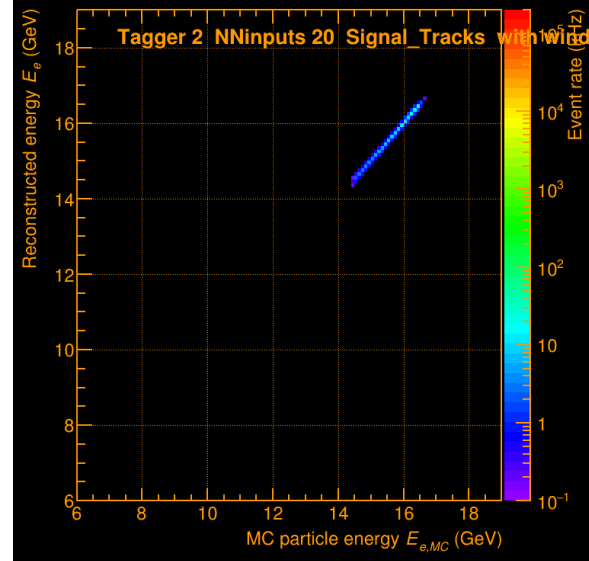
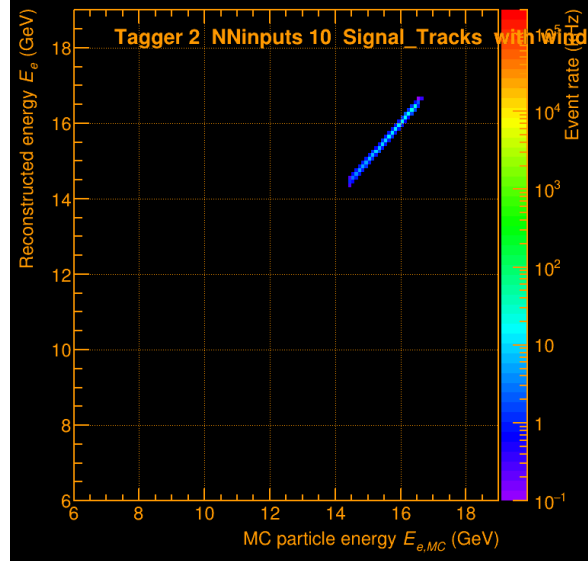
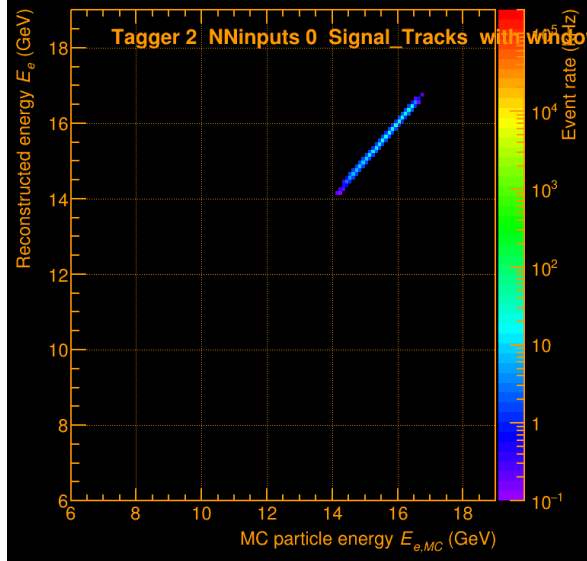
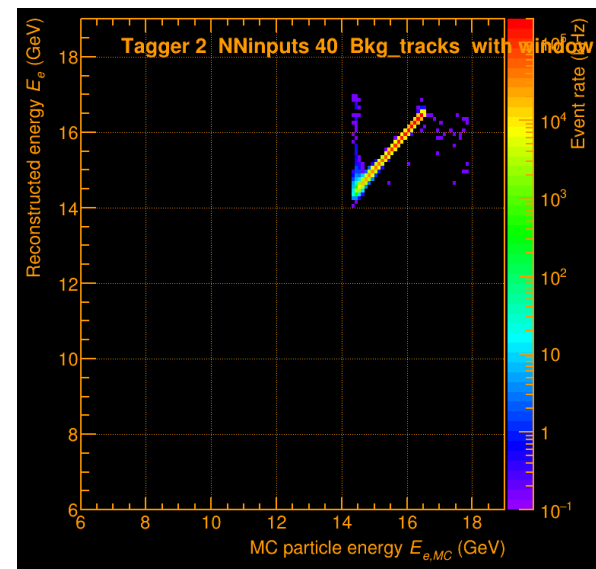
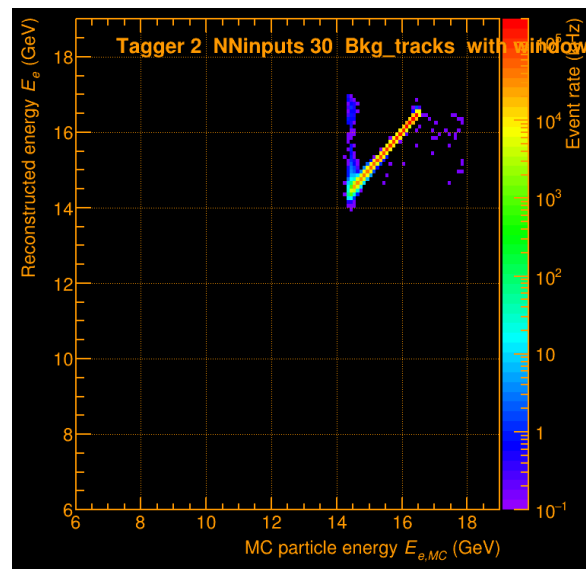
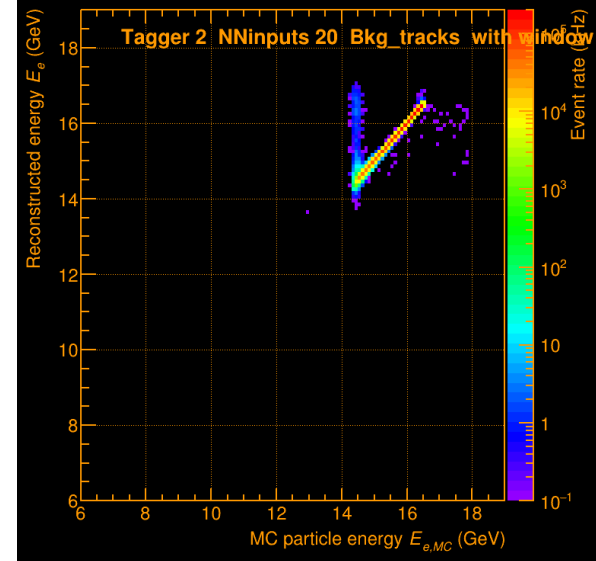
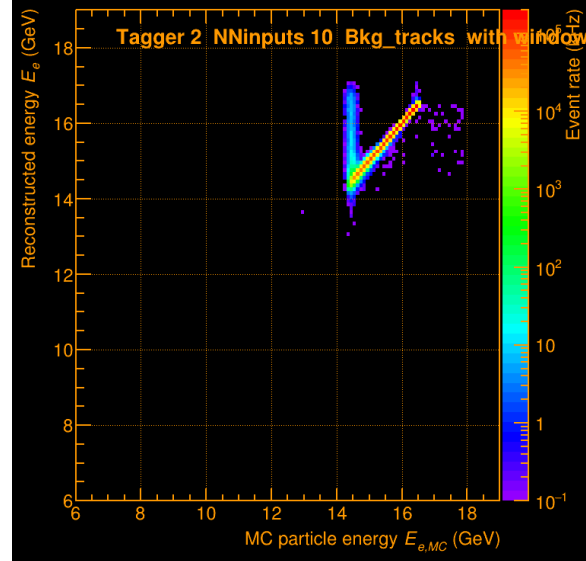
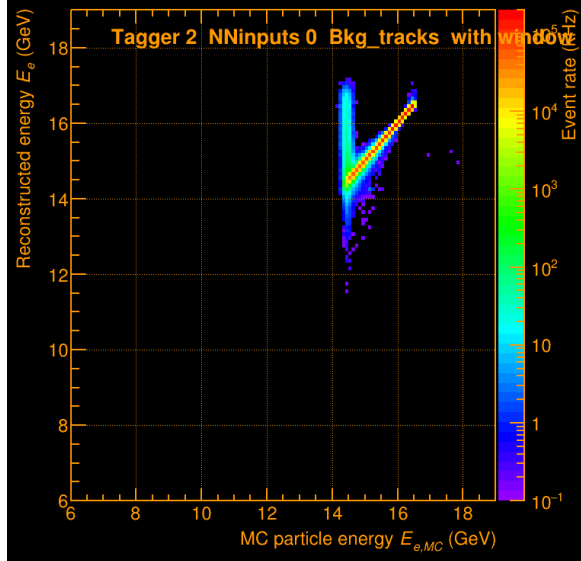


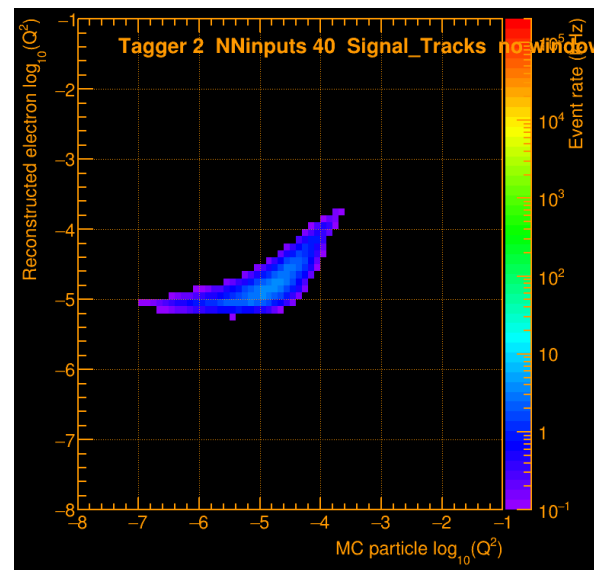
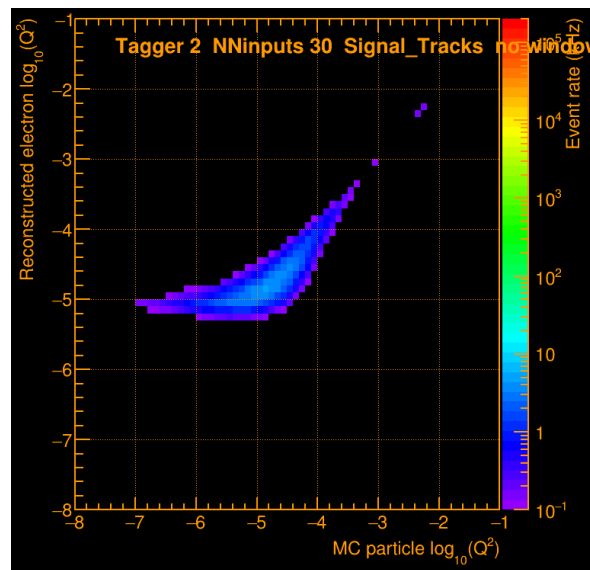
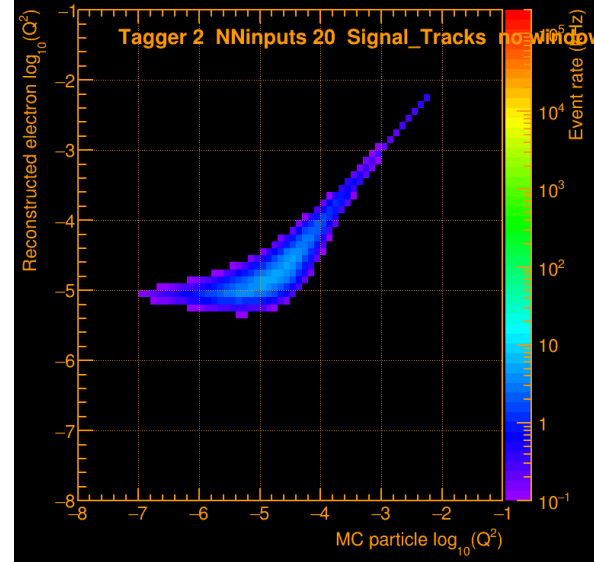
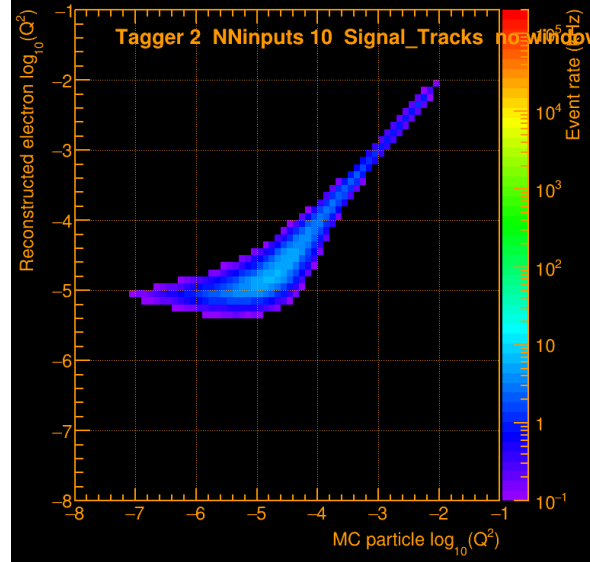
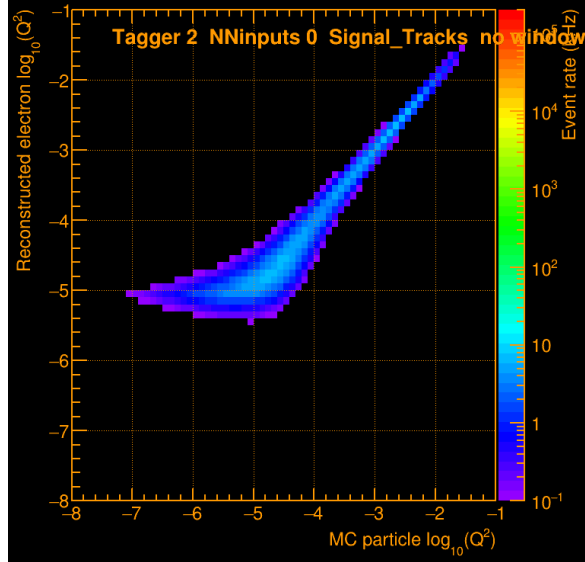
Figure: Original electron p'

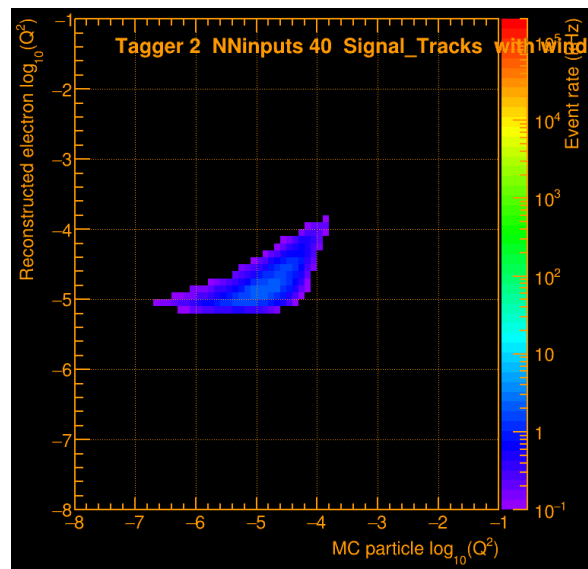
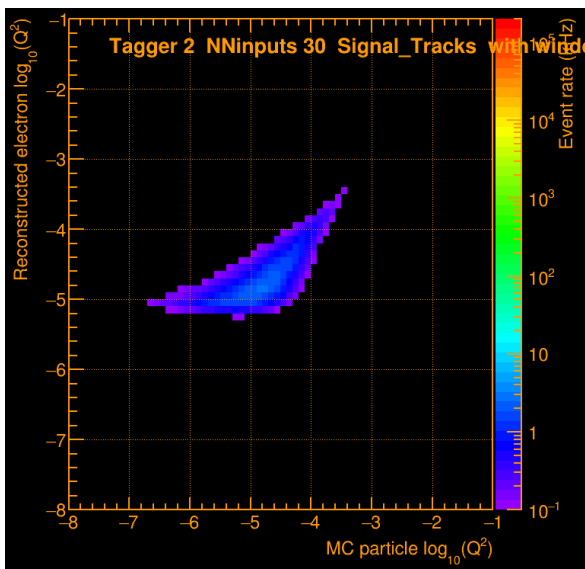
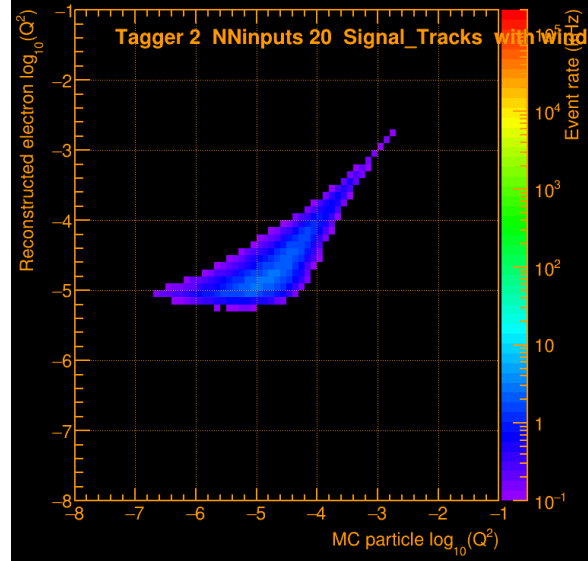
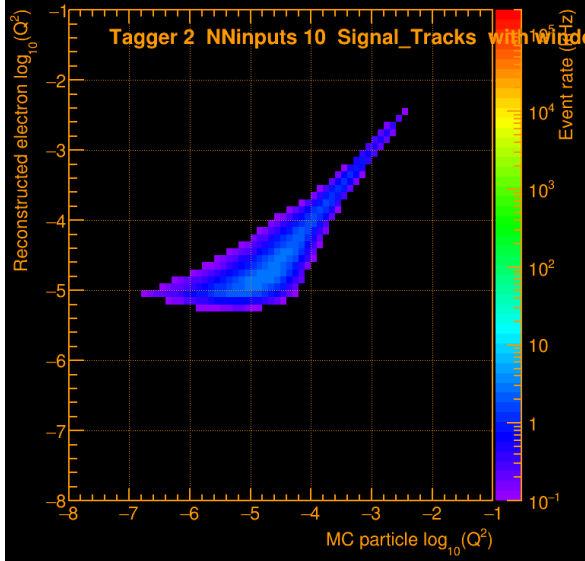
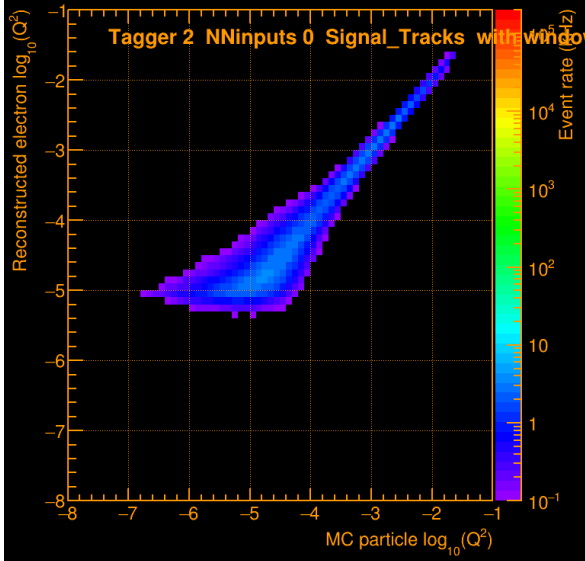


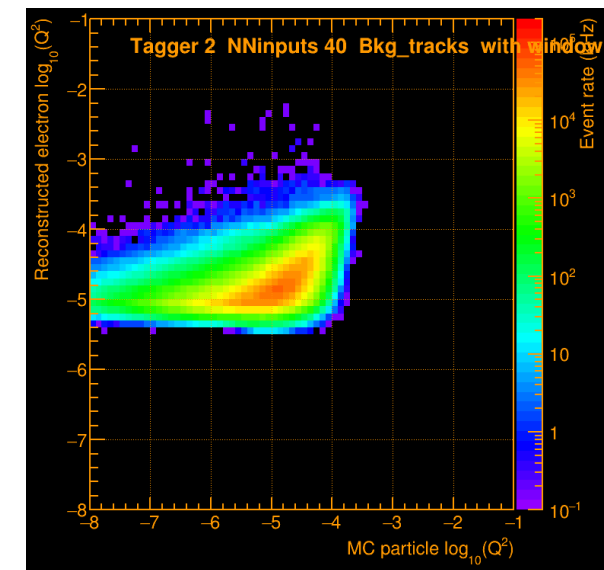
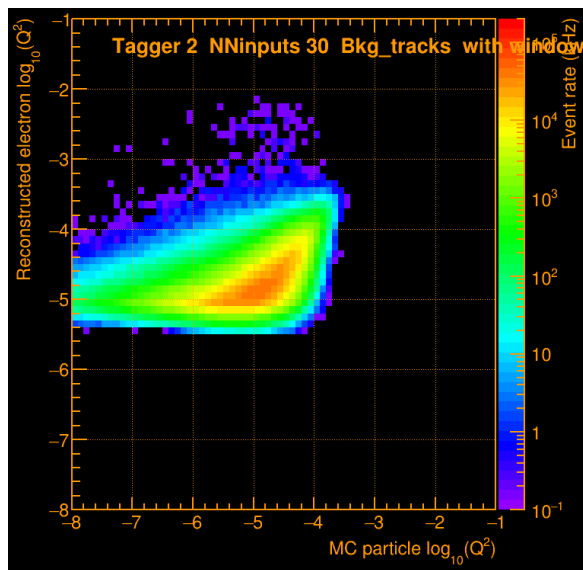
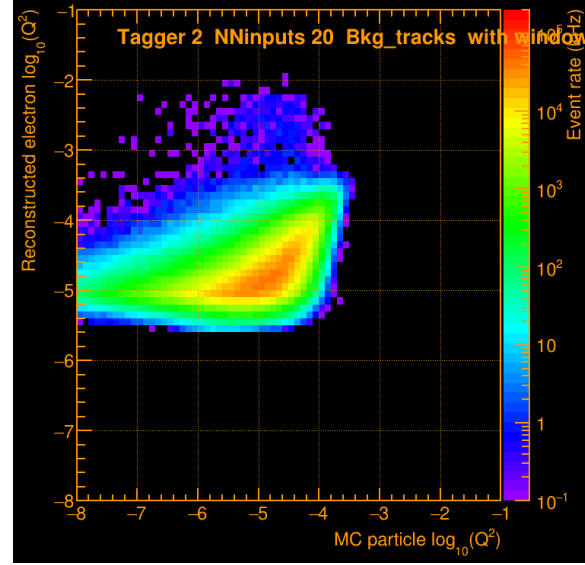
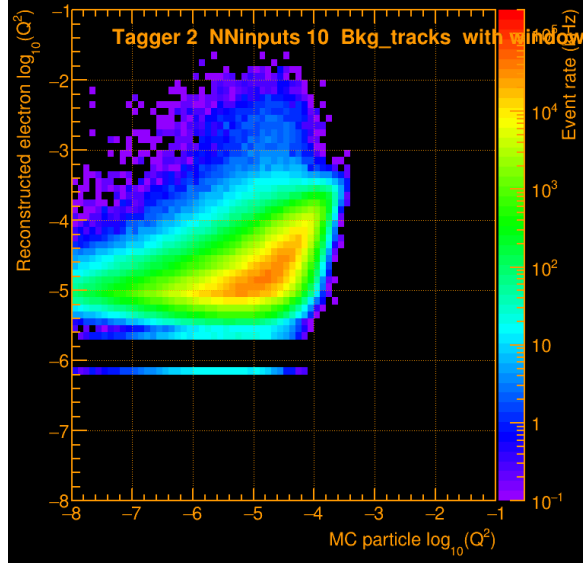
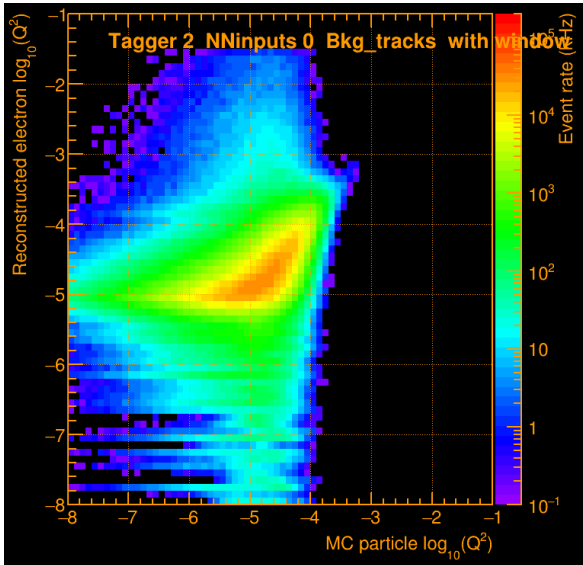


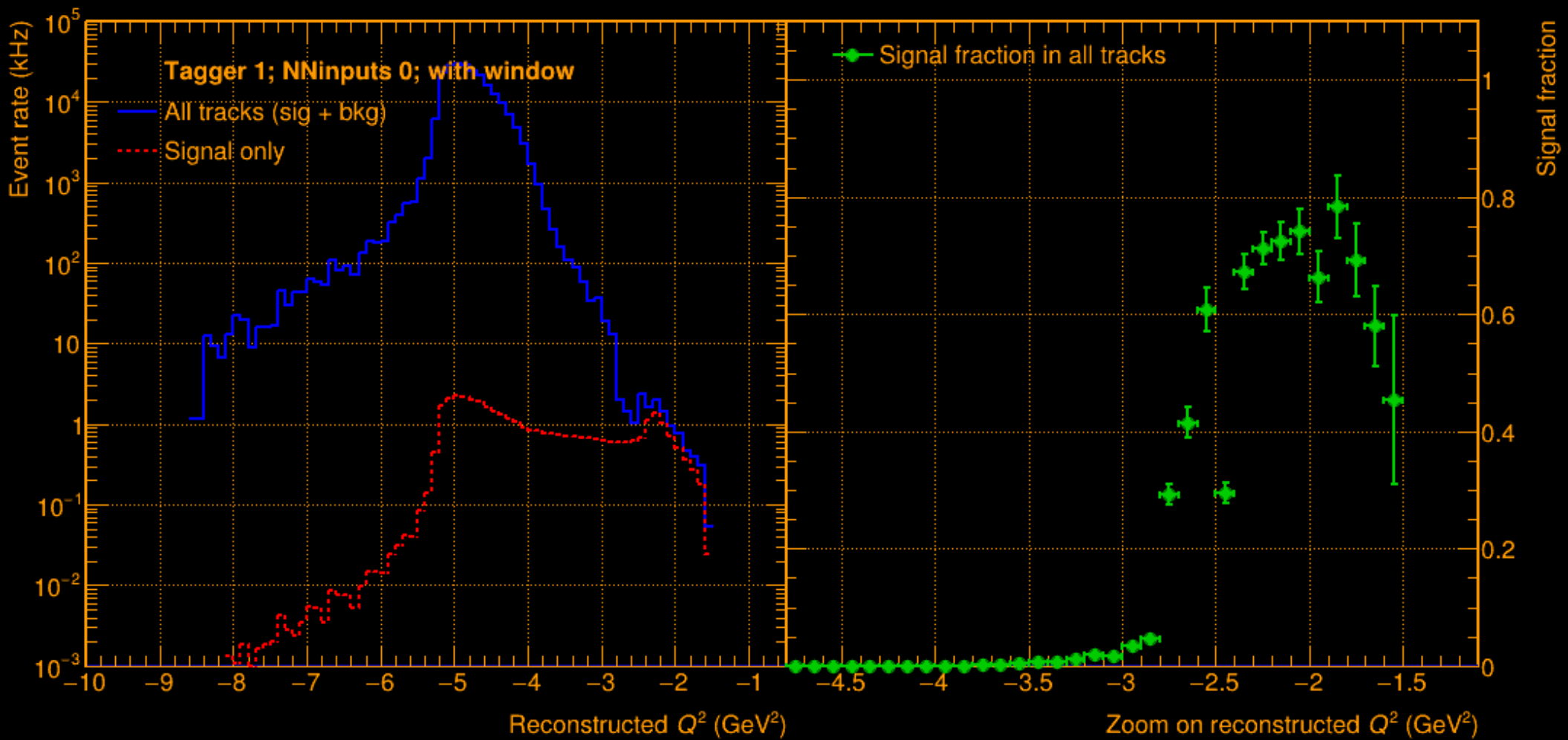


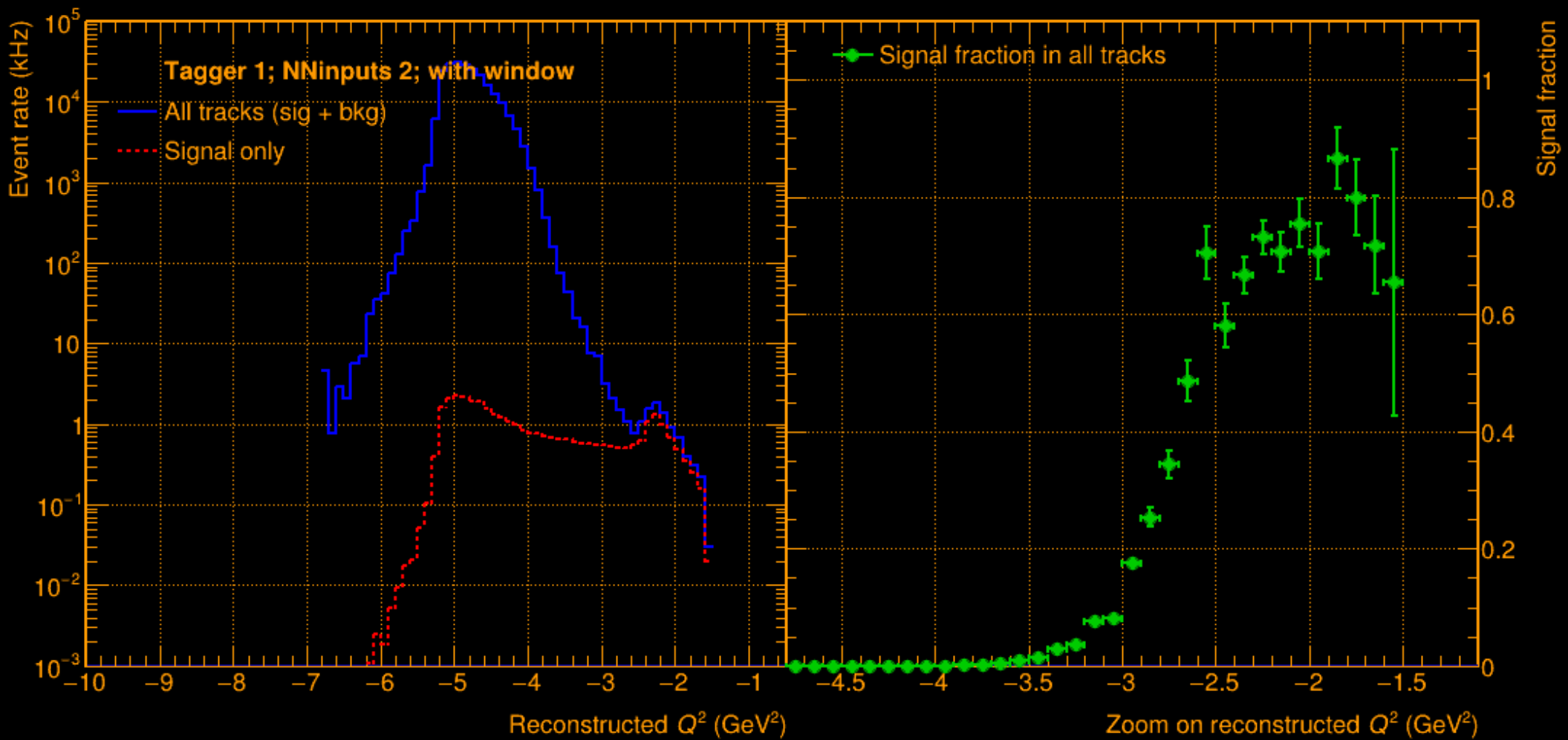


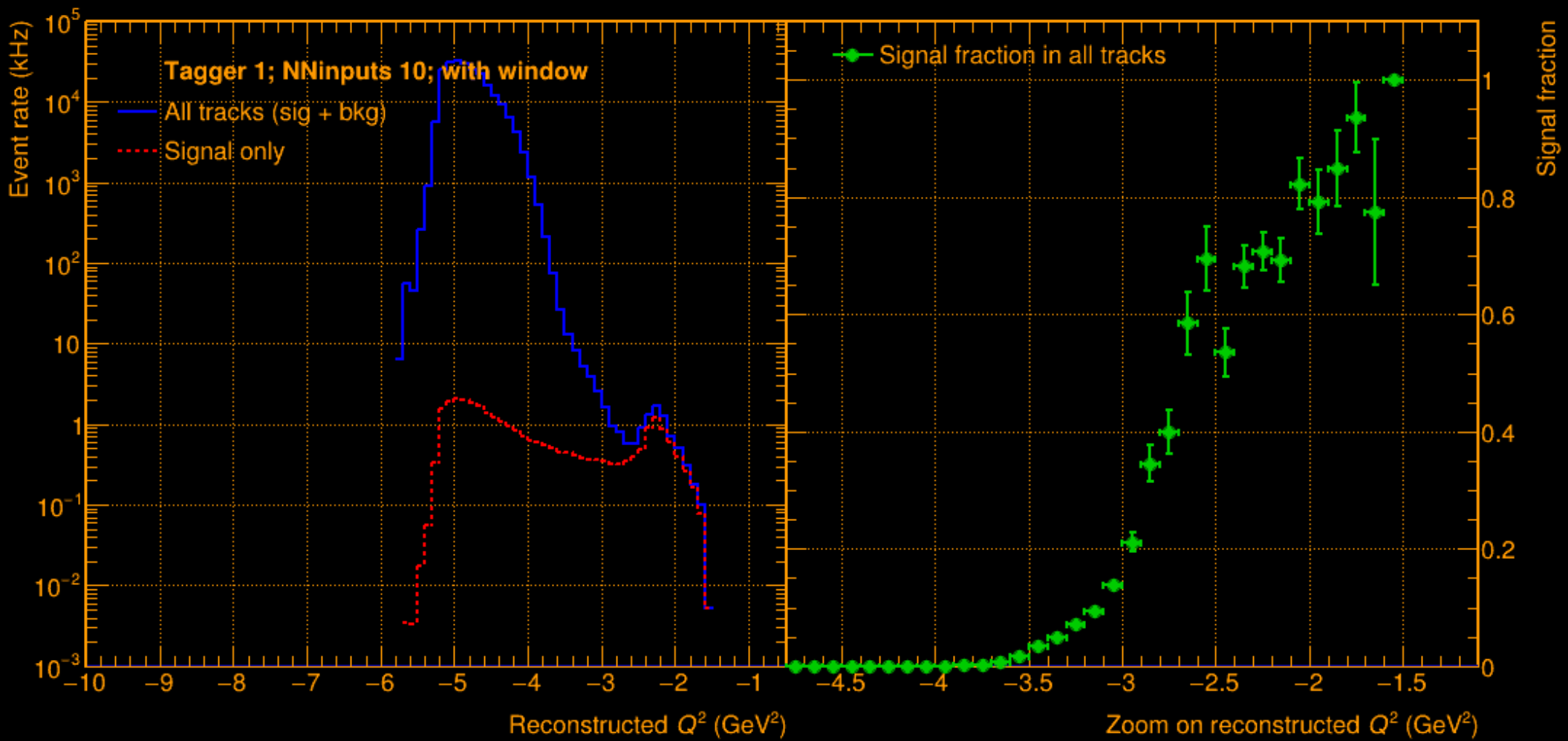


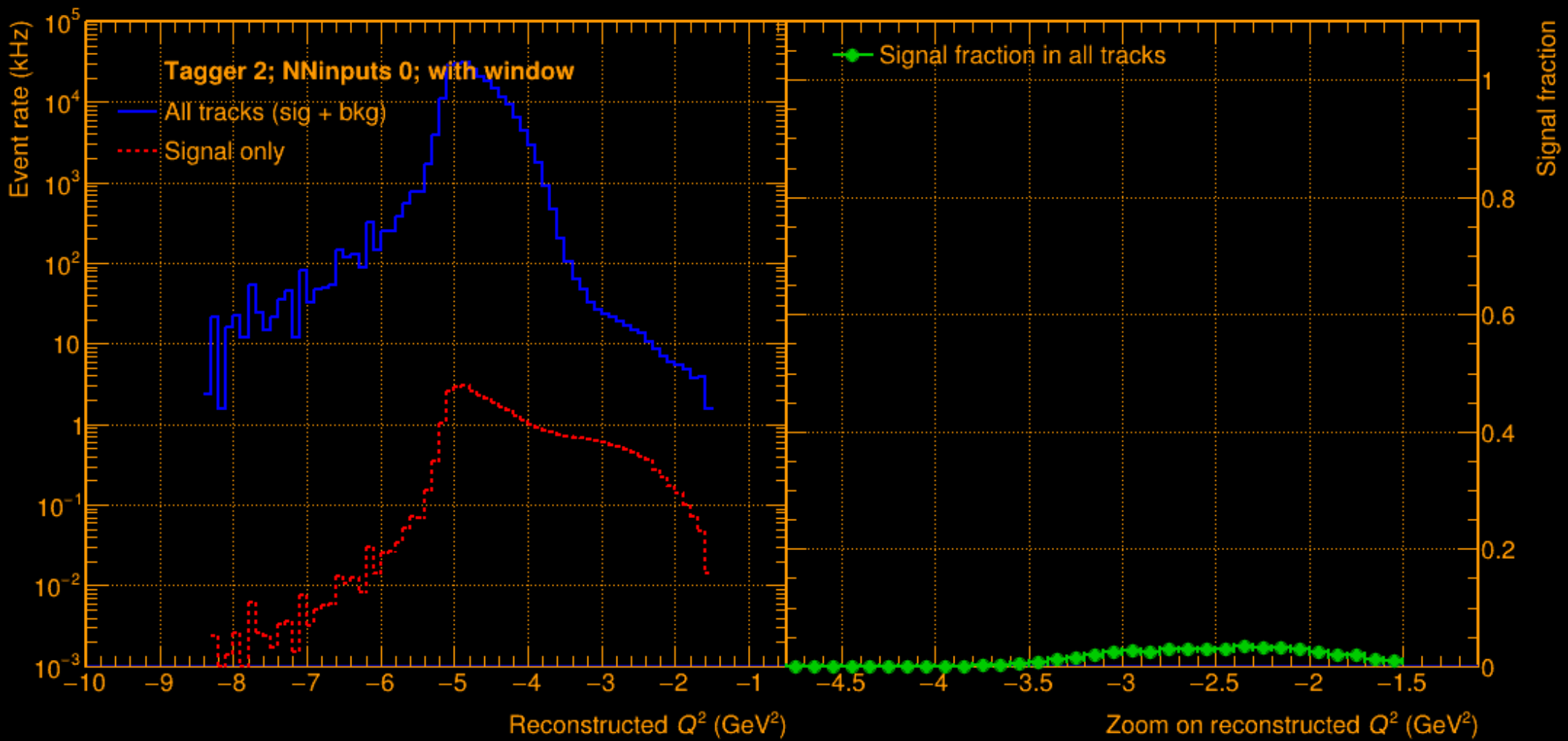


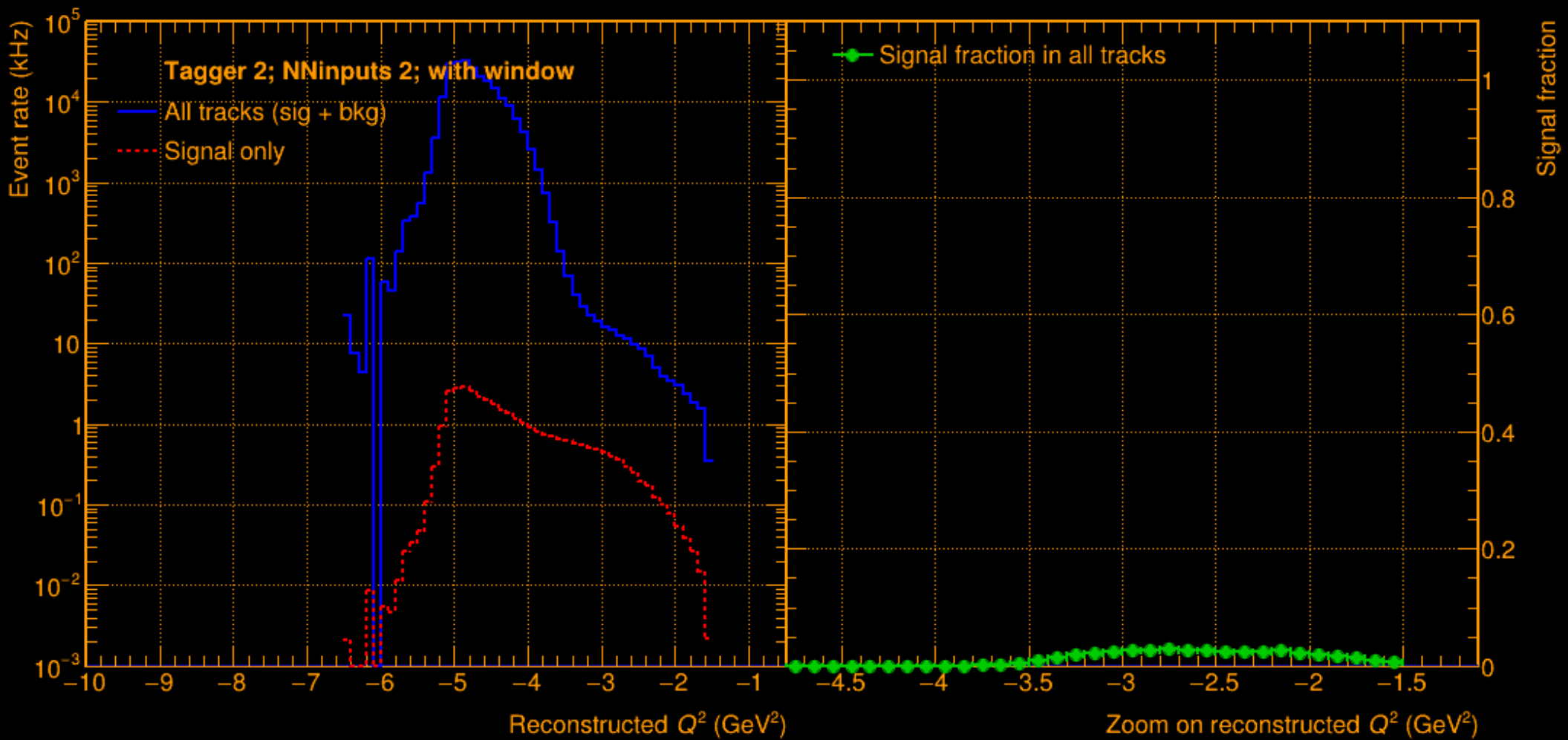


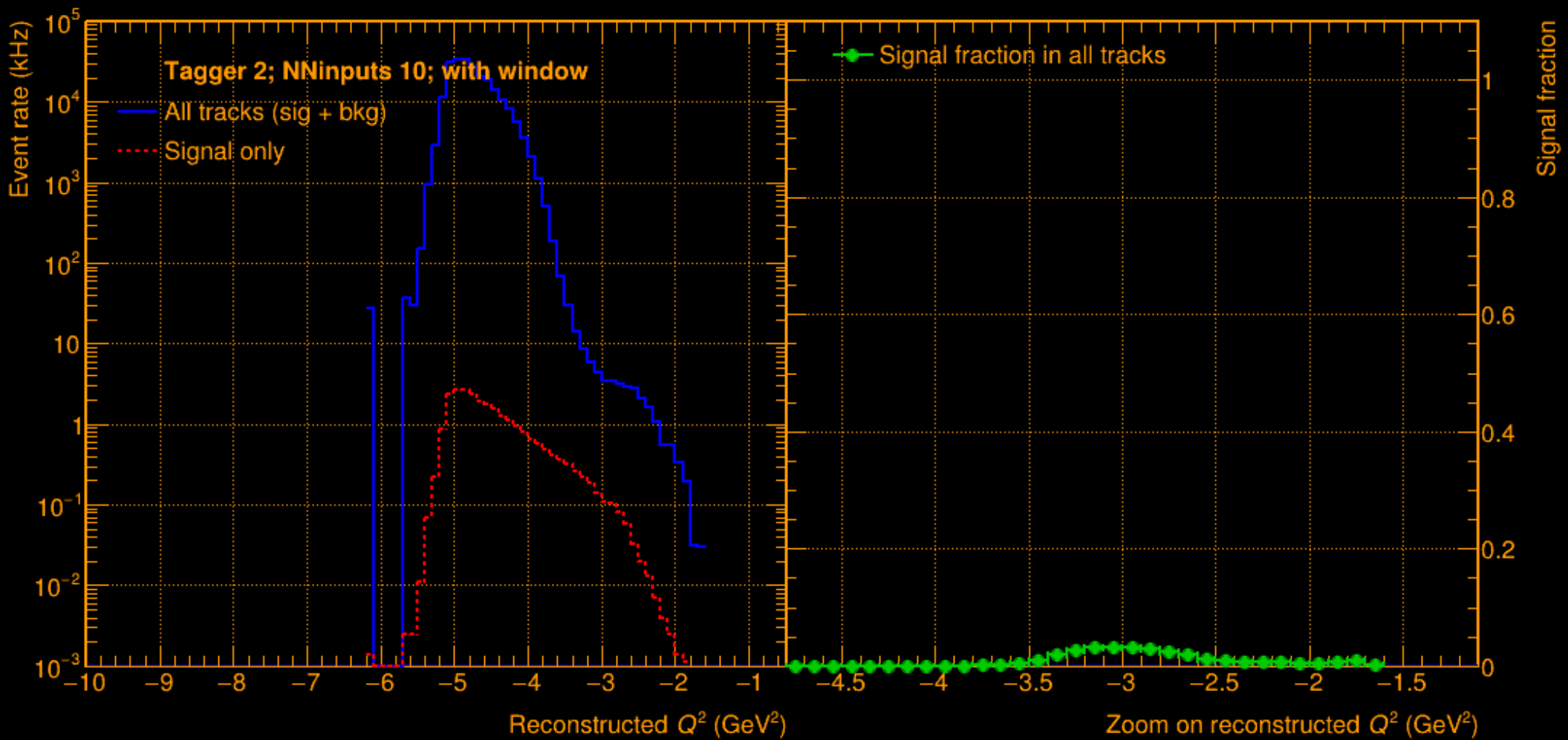








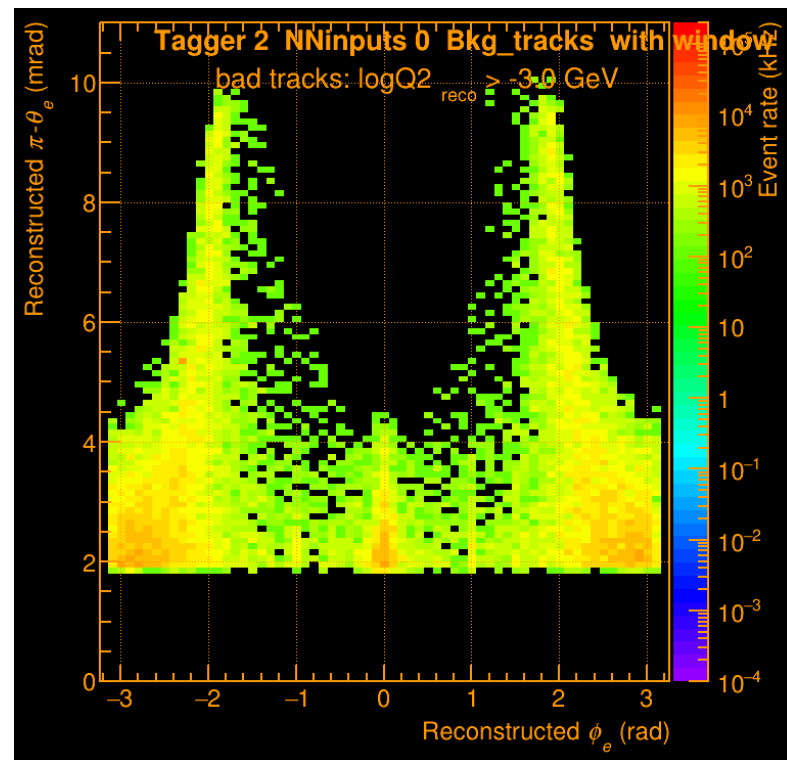
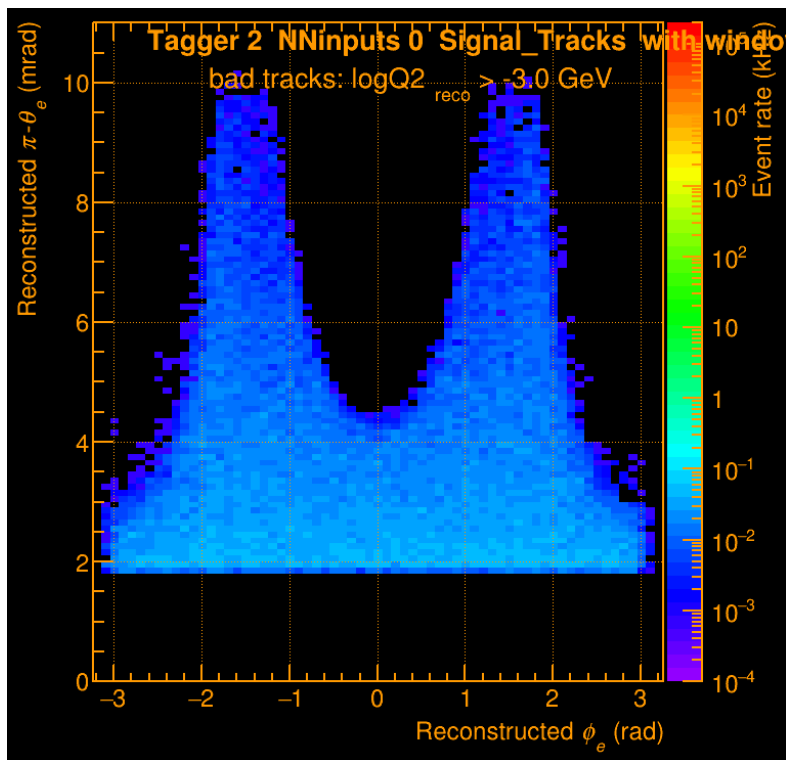


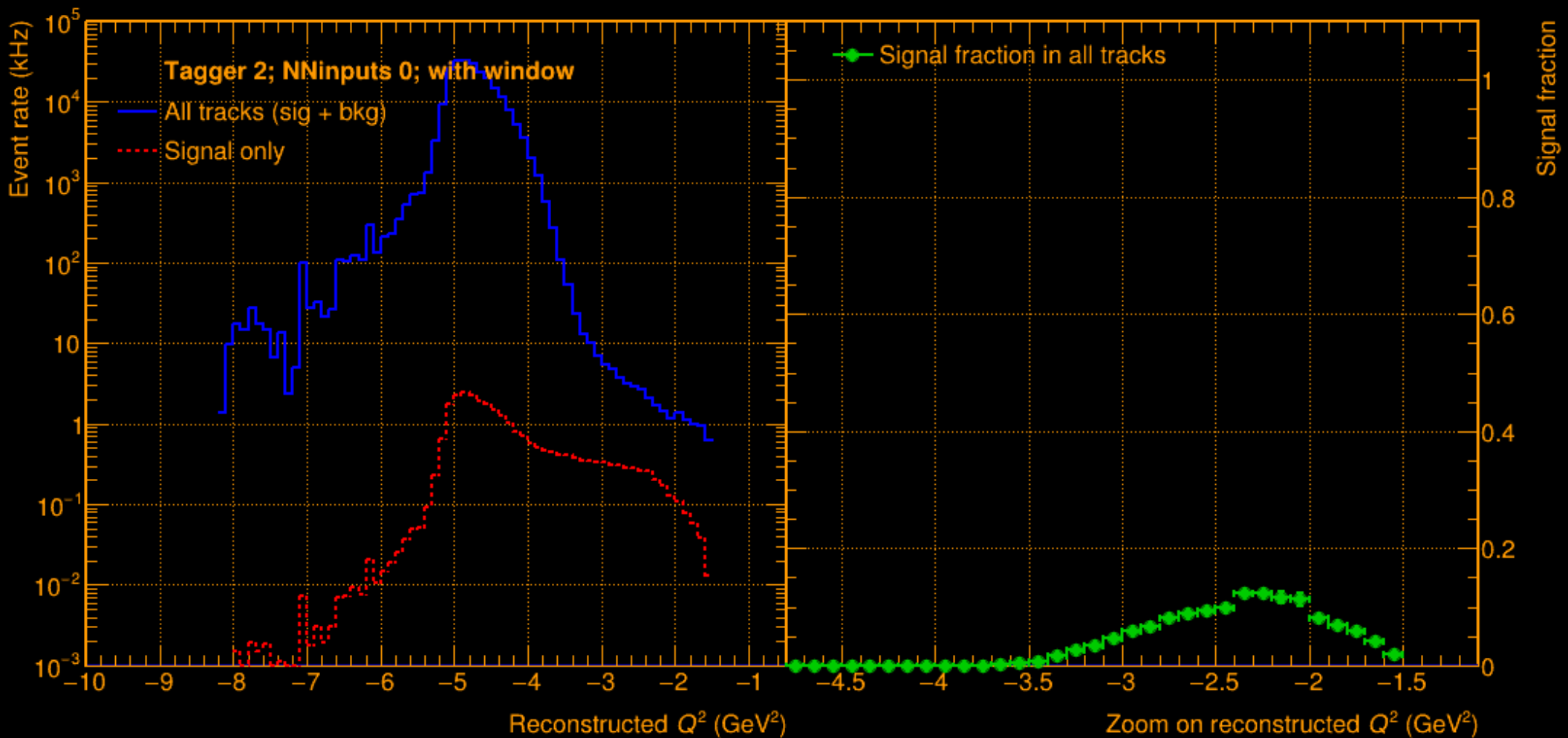


Tagger 2:

- where are the bad tracks (with small Q^2) localized ?

→ can we limit ϕ range ?





$$0.2 < |\varphi| < 1.8$$