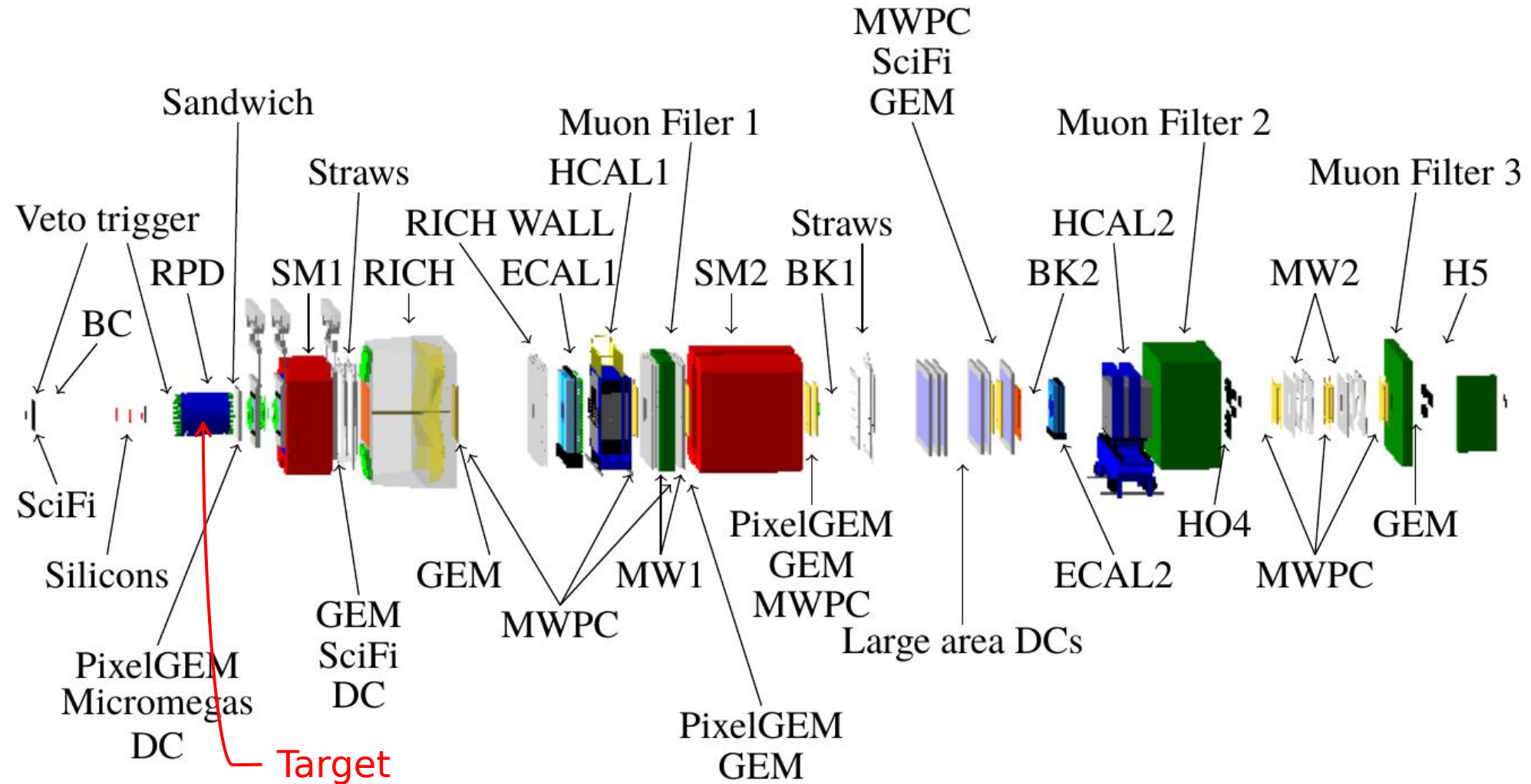


Stability test of 2008 COMPASS data

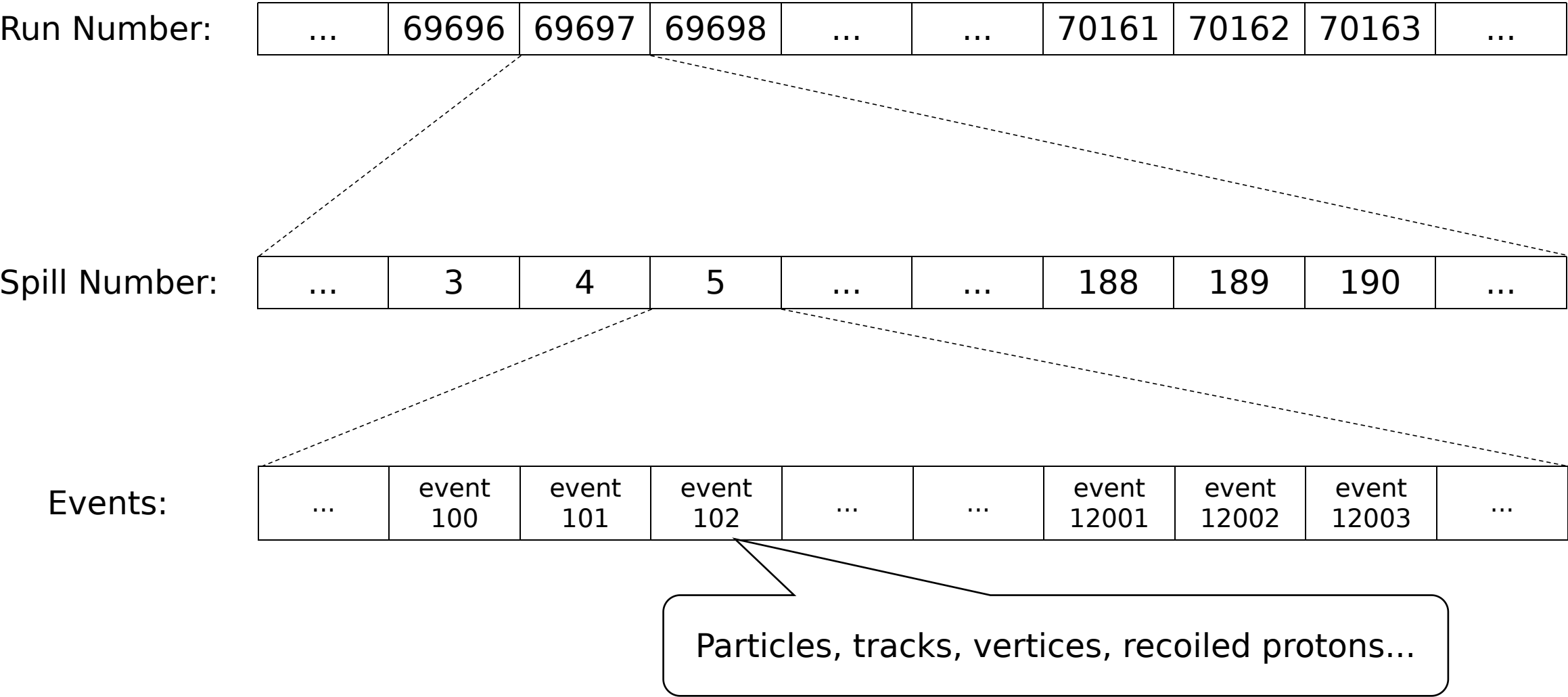
Yanzhao Wang

The goals of analysis

- Finding runs with abnormal properties
- Individual investigation of the runs
- Determine probable cause of abnormal properties



Structure of data storage



Datasets and pre-selection:

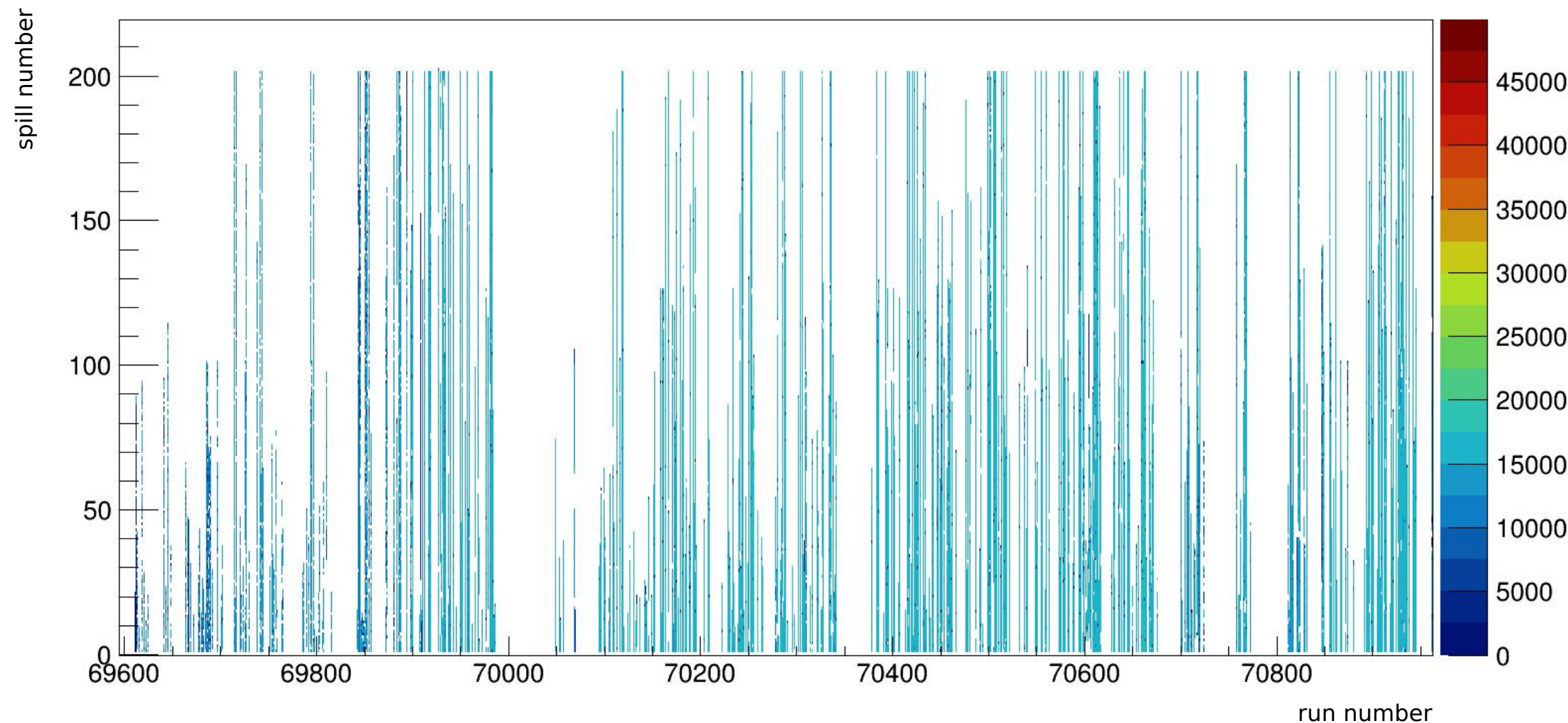
Datasets info:

Year	2008
Week	Week 33, 35, 37
Run number	69595 ~ 70963

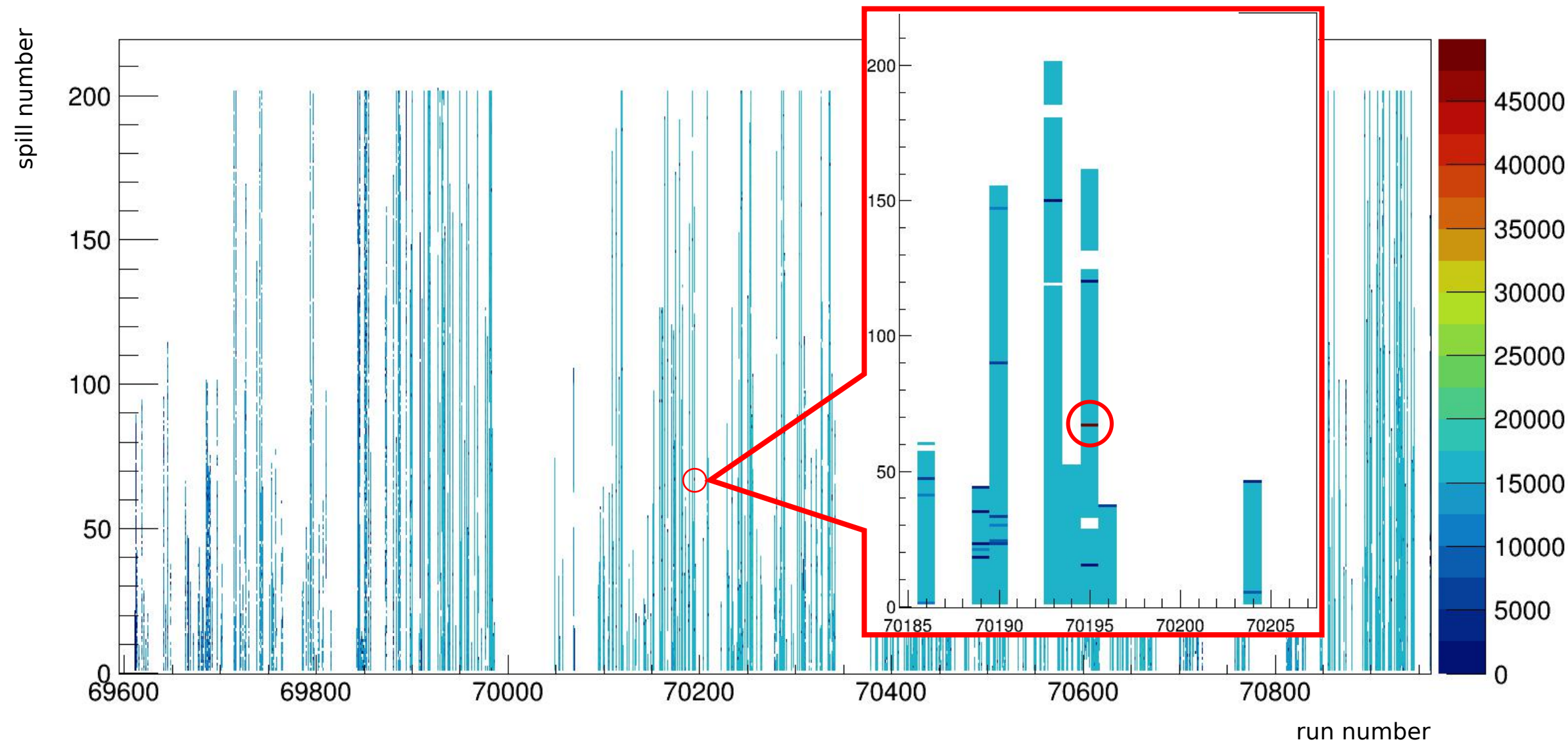
Conditions of filtering

1. A best primary vertex was found
2. Primary vertex Z-position Z_{pv} : $-200 \text{ cm} < Z_{pv} < 160 \text{ cm}$
3. Exactly one or three charged tracks, leaving the primary vertex
4. Charge sum of all three tracks = -1

Overlook of event distribution

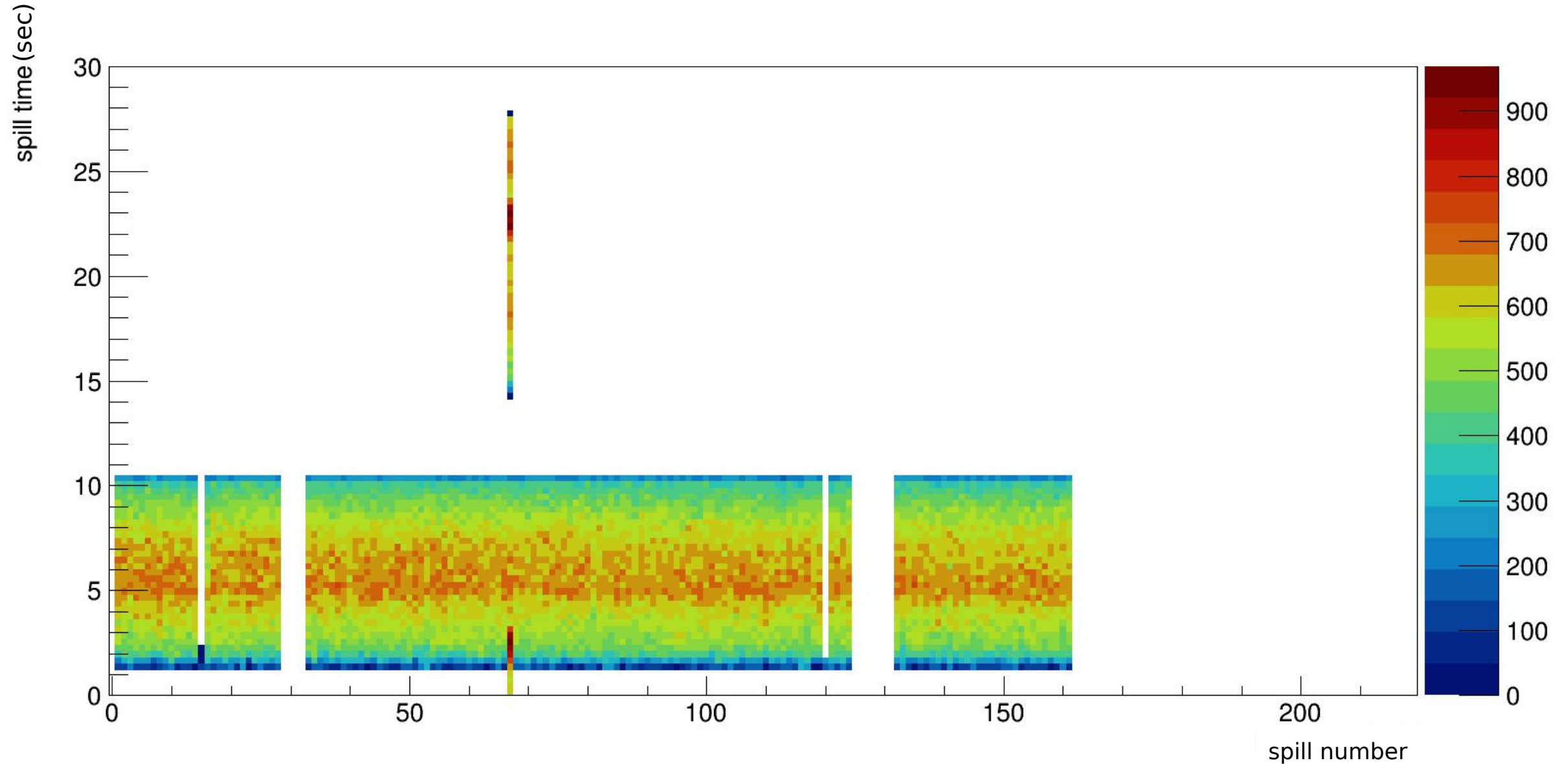


Overlook of event distribution



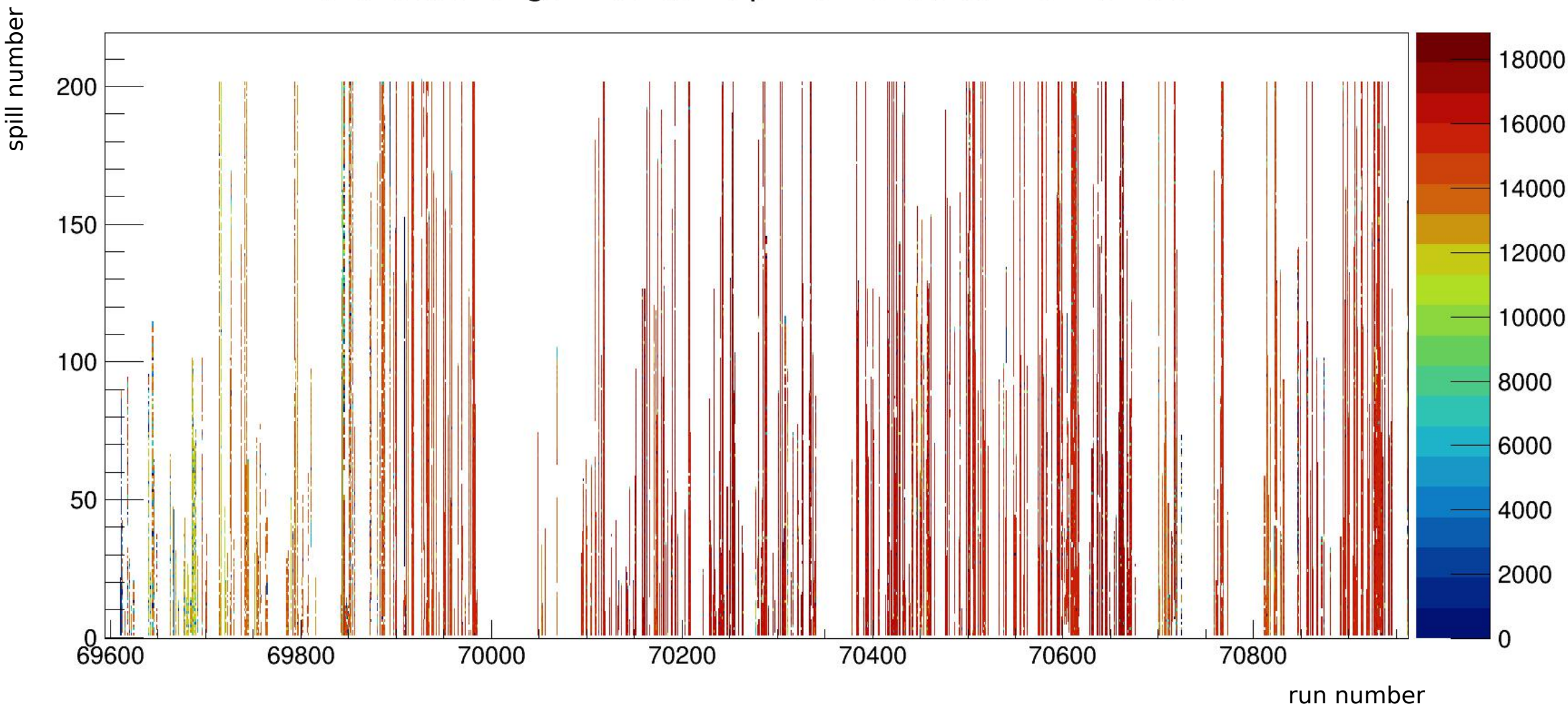
Event distribution of each spill (Run = 70195)

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Overlook of event distribution

event countings in certain Spillnum of certain runnumber

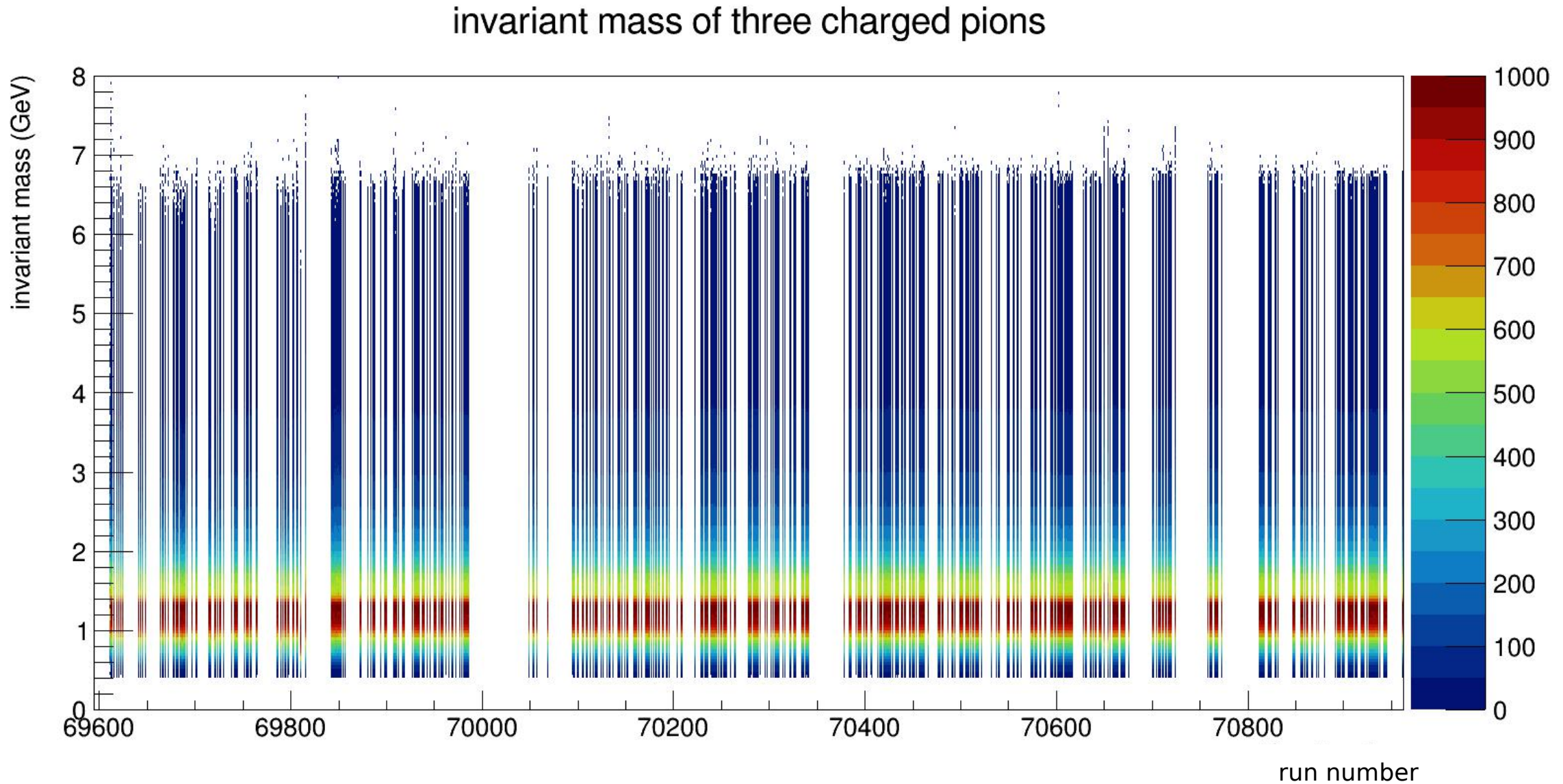


Parameters investigated

- Invariant mass of three pions
- Photon number from different calorimeters
- The total invariant mass
- Angular distribution of recoiled proton
- The FWHM width of invariant mass histogram

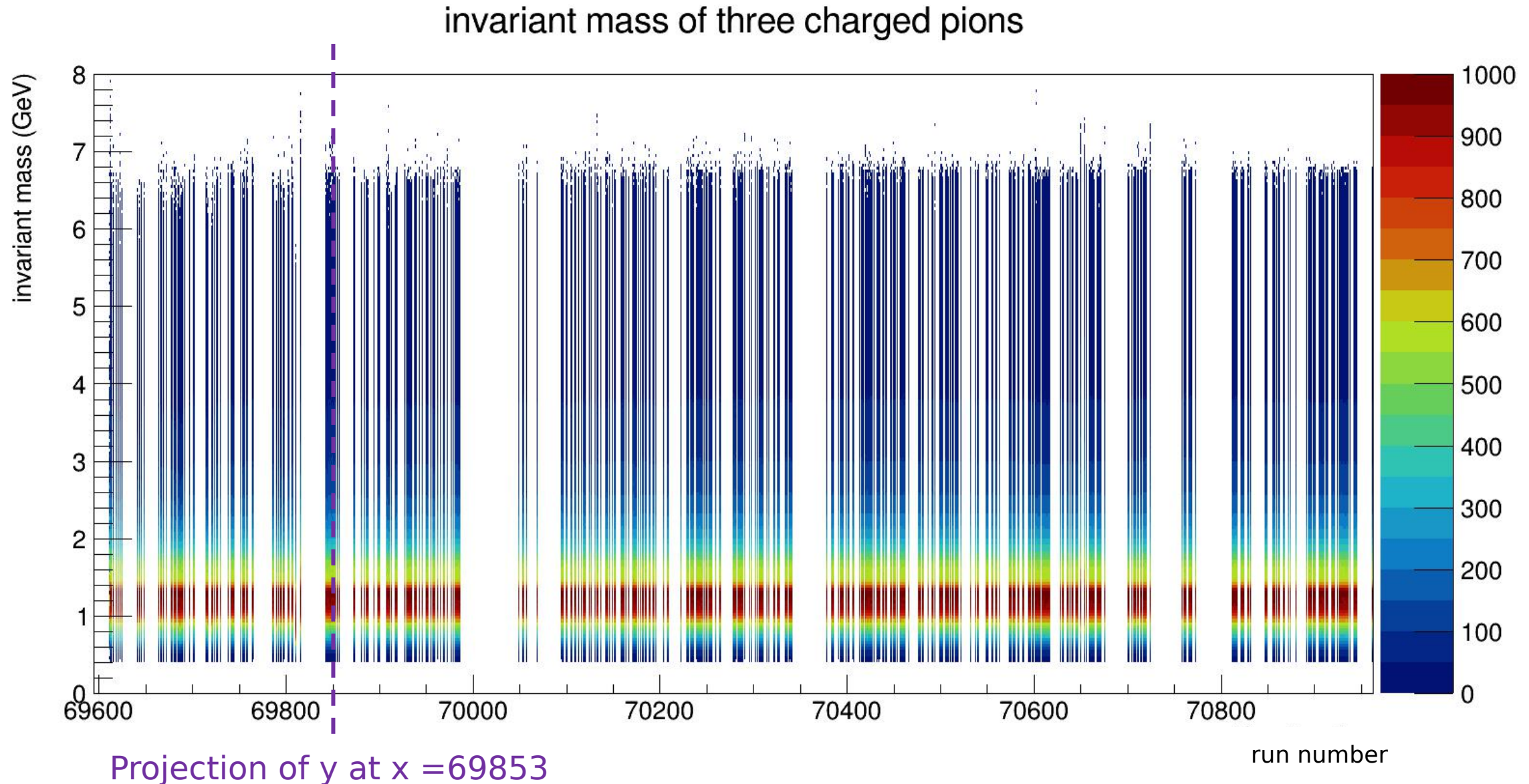
Invariant mass of 3 pions (normalized)

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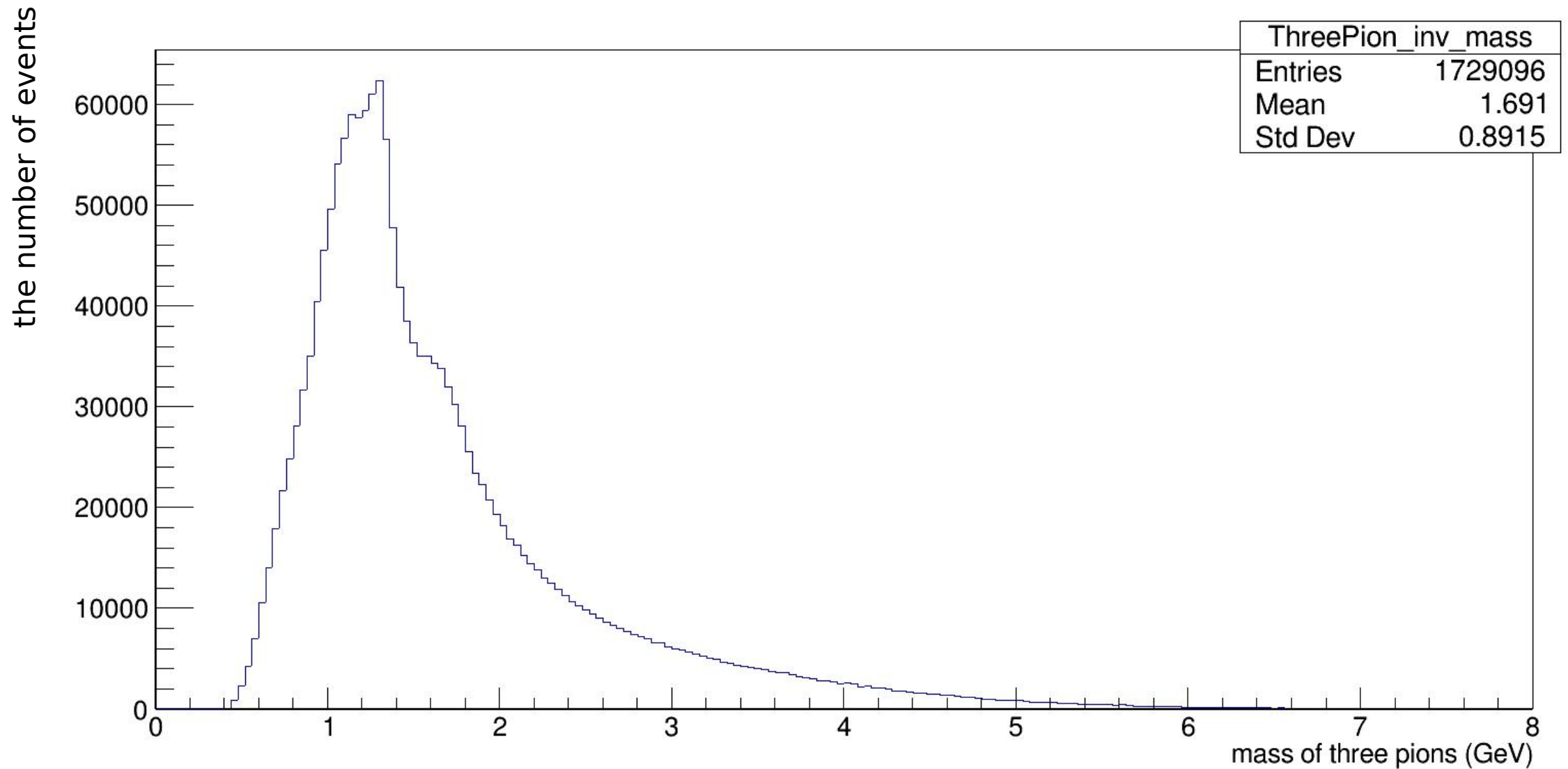
Invariant mass of 3 pions (normalized)

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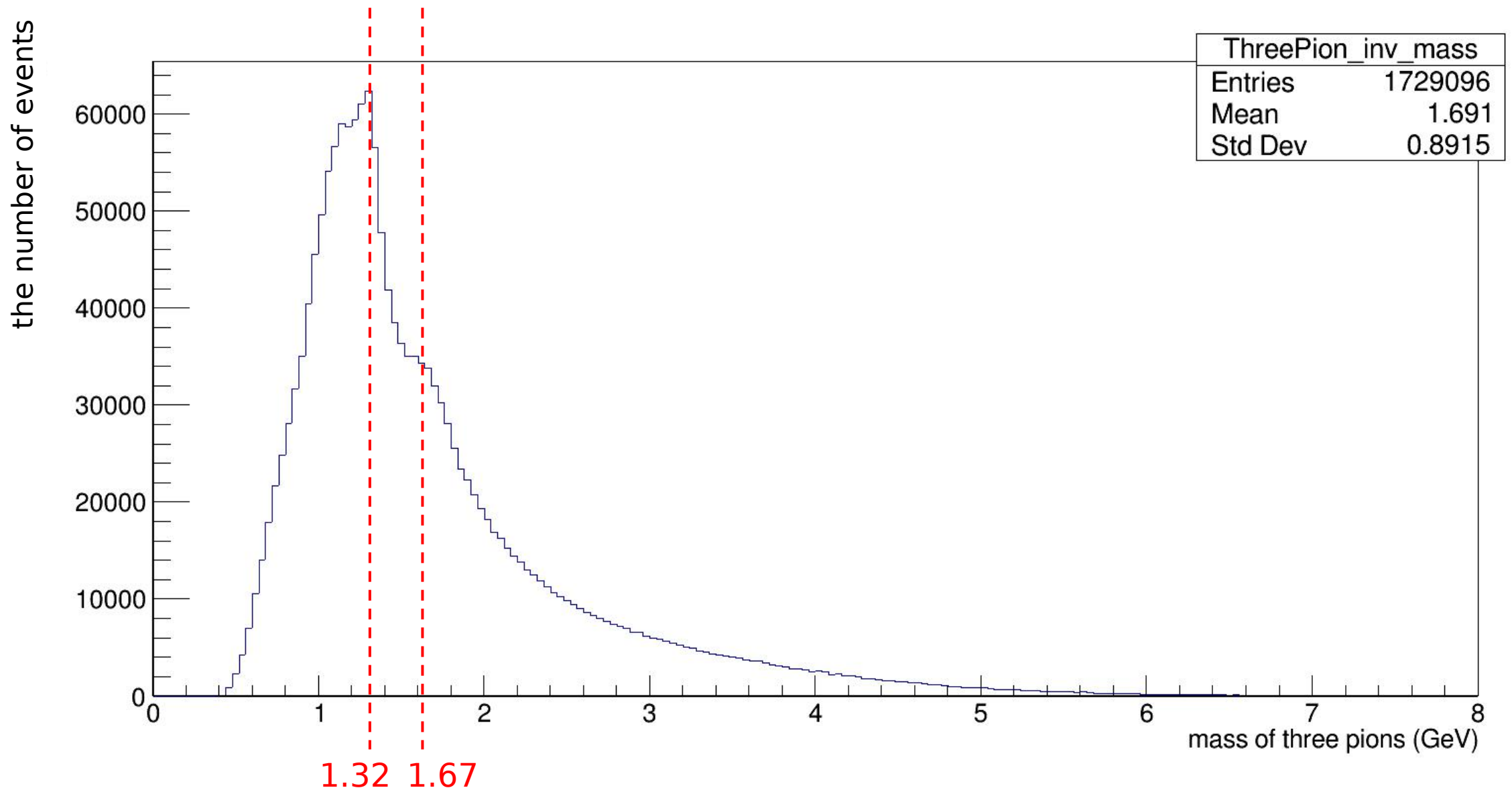
Invariant mass of 3 pions(Run = 69853)

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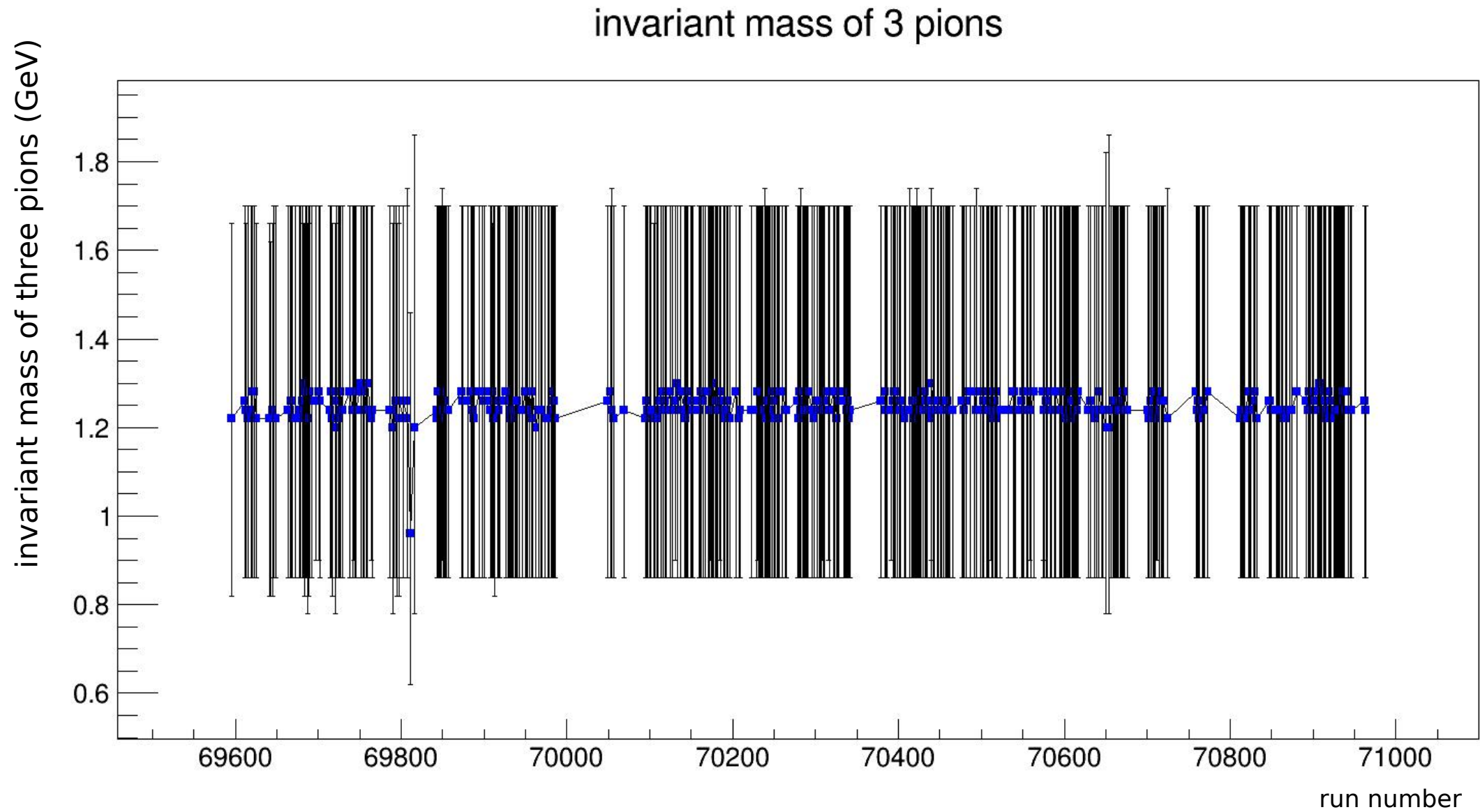
Invariant mass of 3 pions(Run = 69853)

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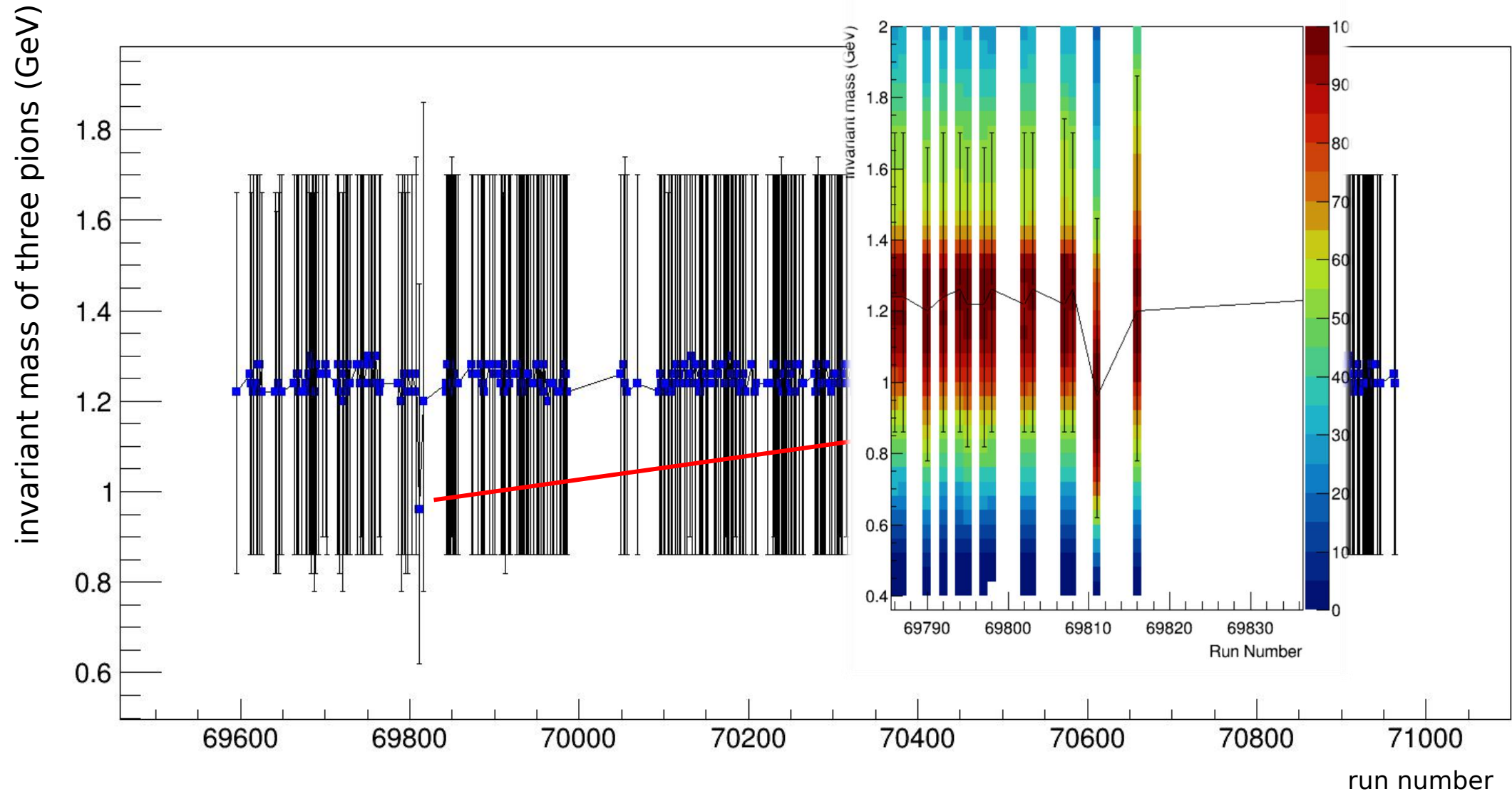
3 pions invariant mass

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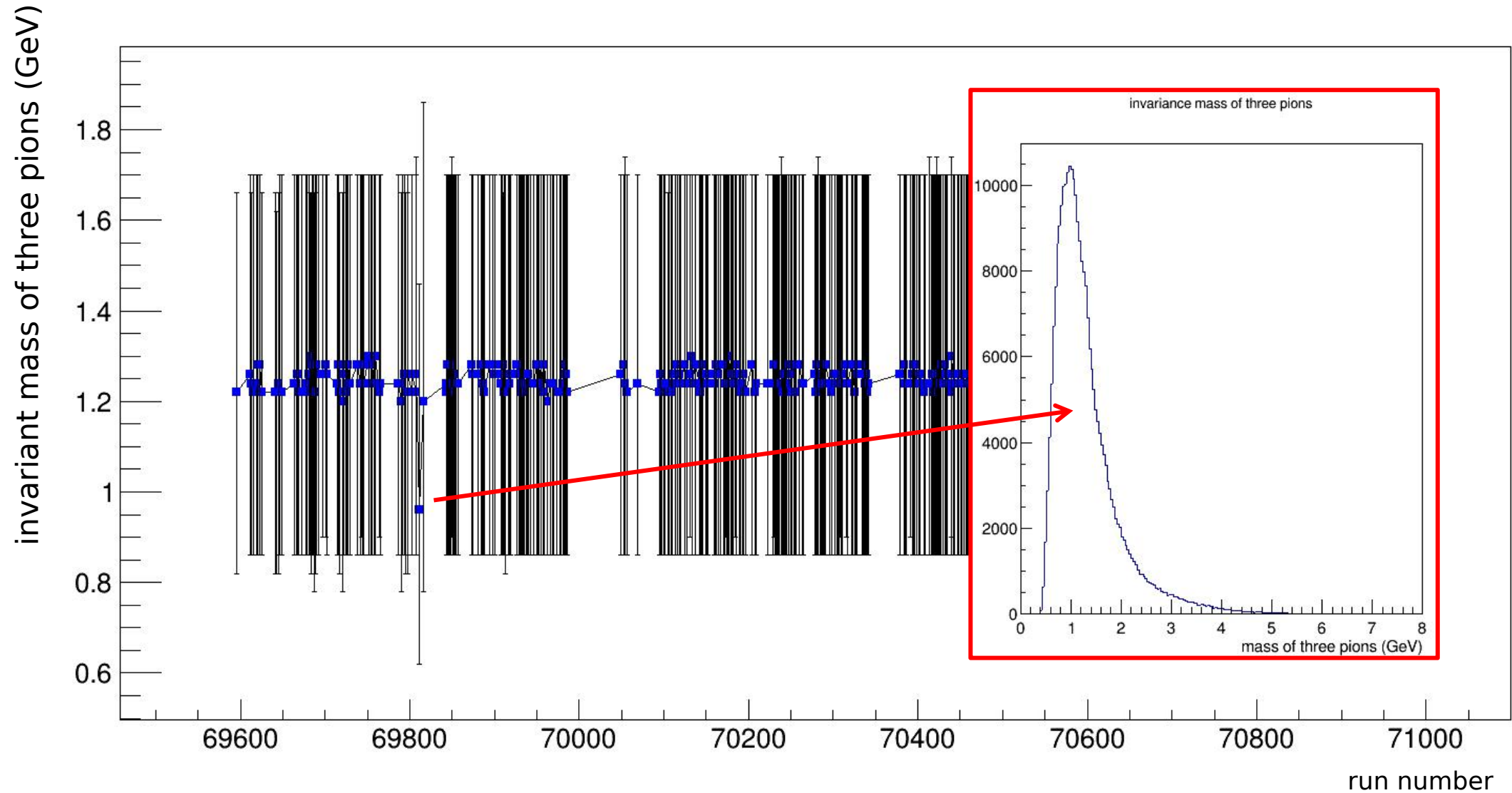
3 pions invariant mass

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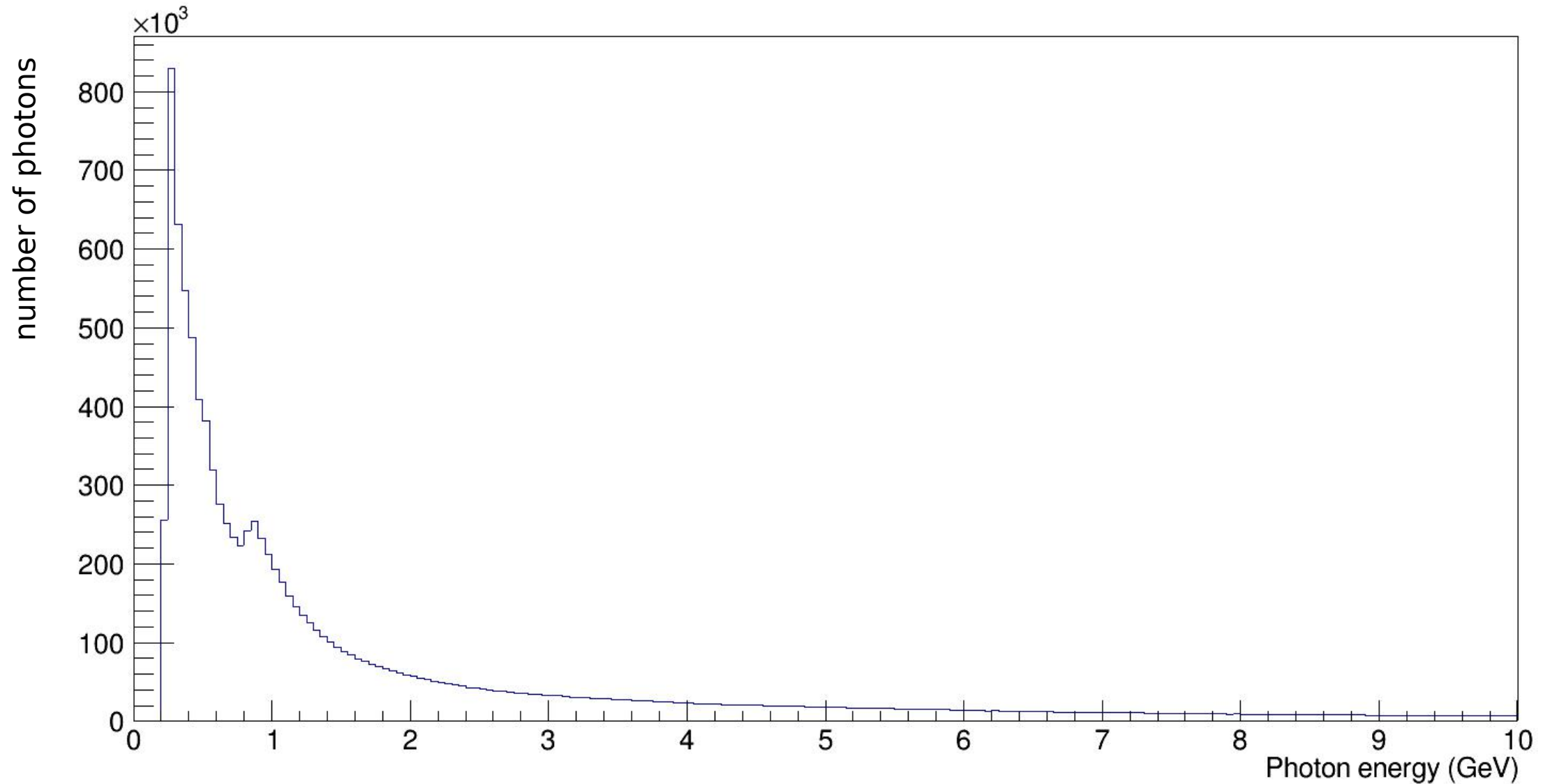
3 pions invariant mass

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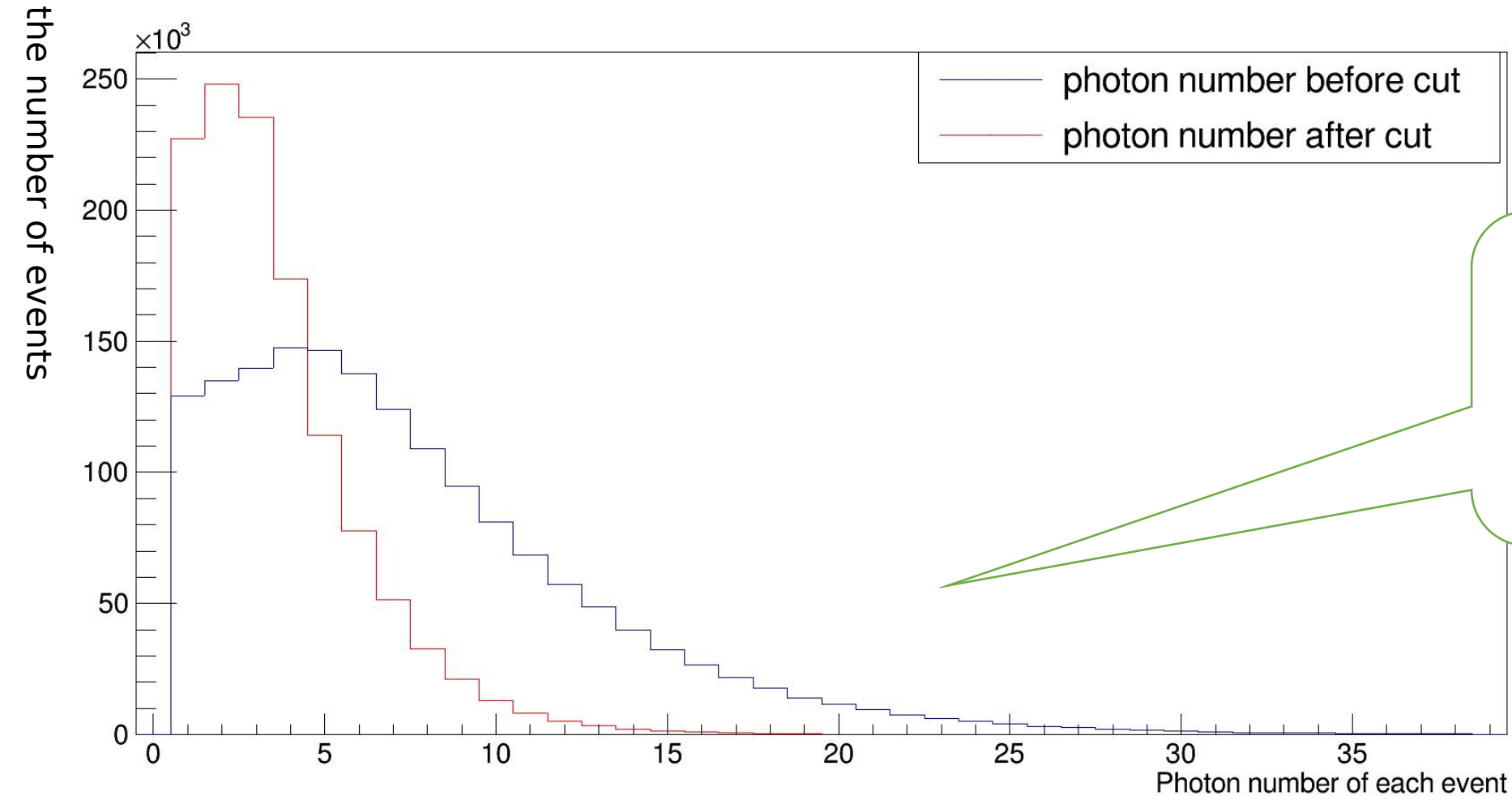
Photon energy (Run = 69853)

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Photon energy cut (Run = 69853)

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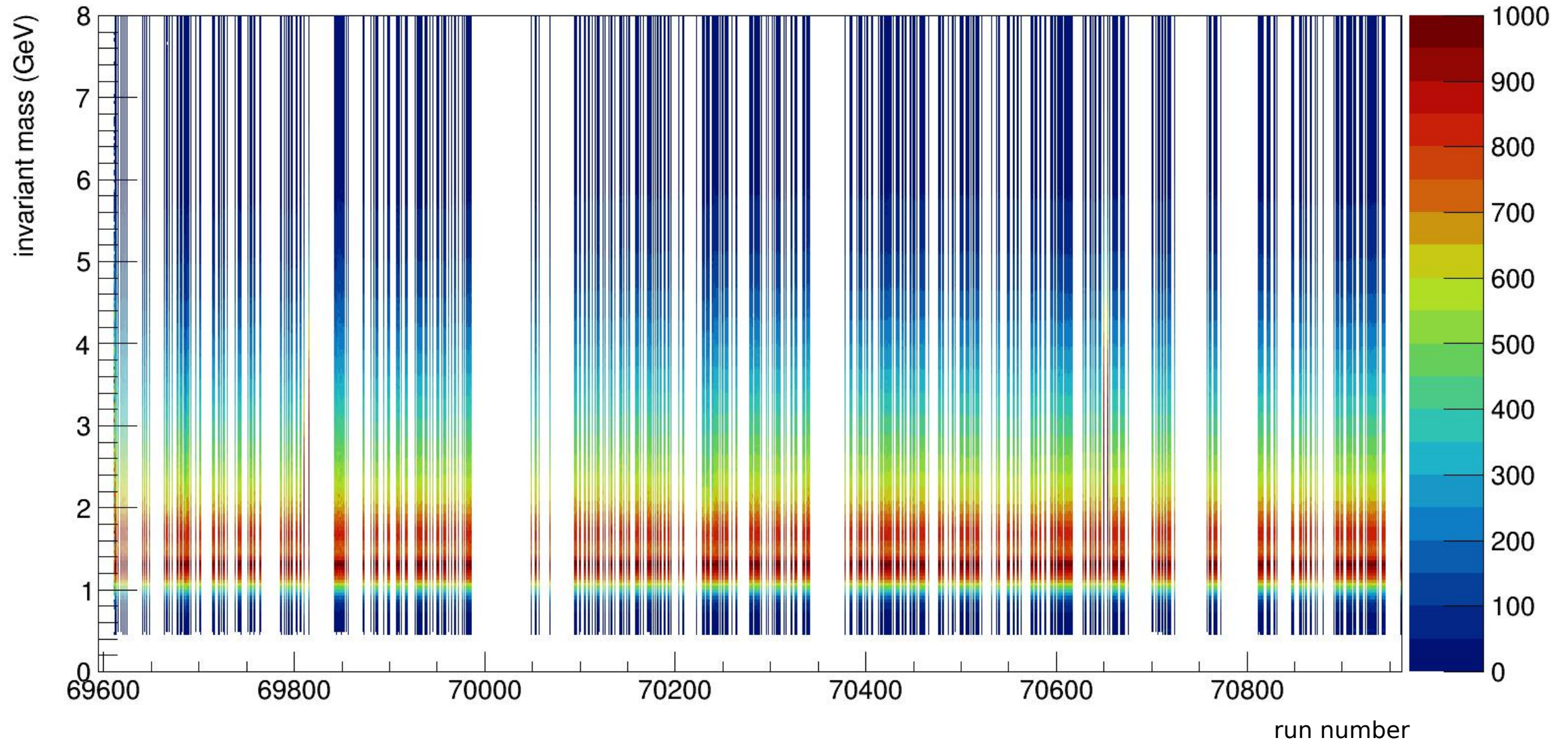
Cut condition:

Calorimeter	Energy
ECAL1	>1 GeV
ECAL2	>4 GeV

The total invariant mass (normalized)

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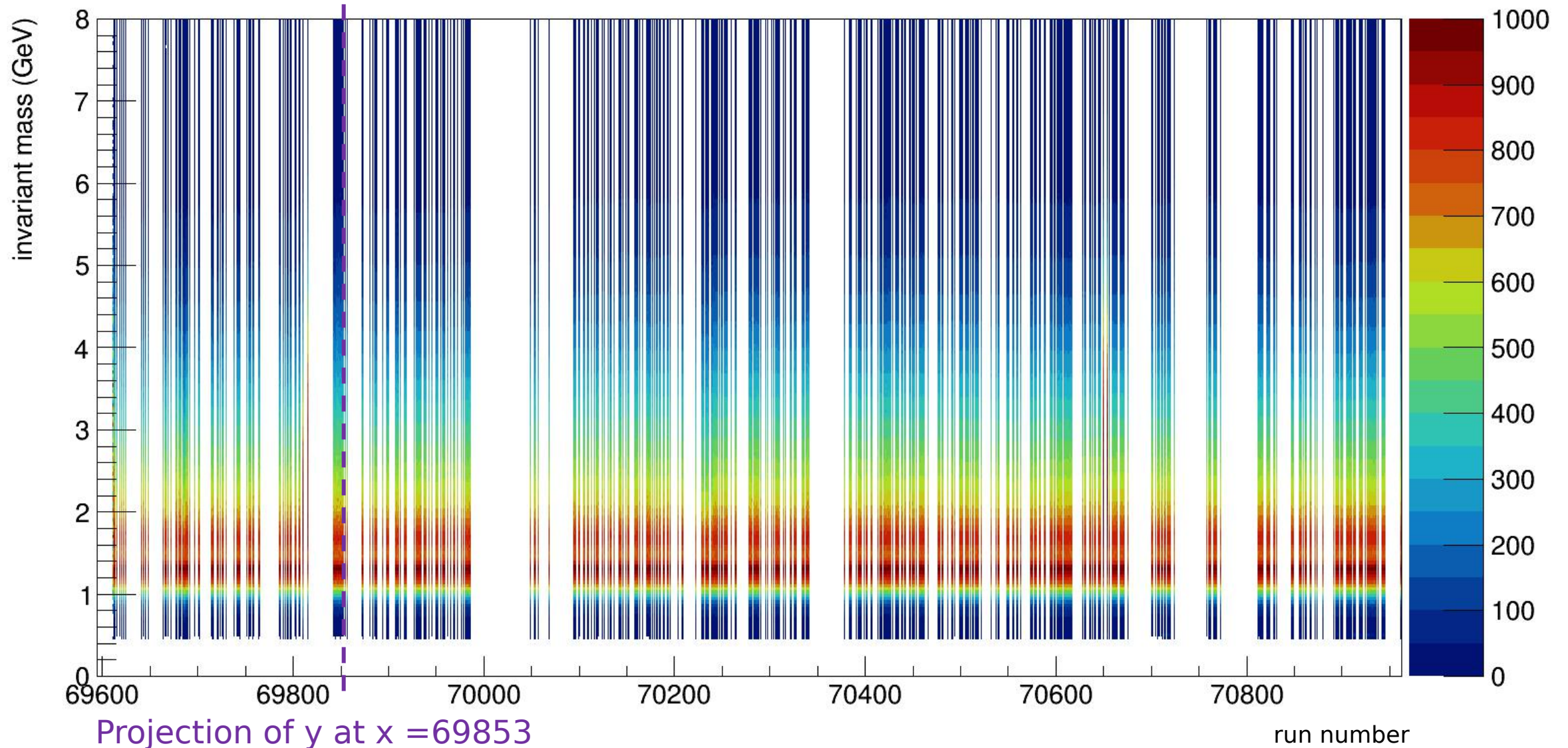
invariant mass of pions and photons (photon energy cutoff 1 & 4 GeV)



The total invariant mass (normalized)

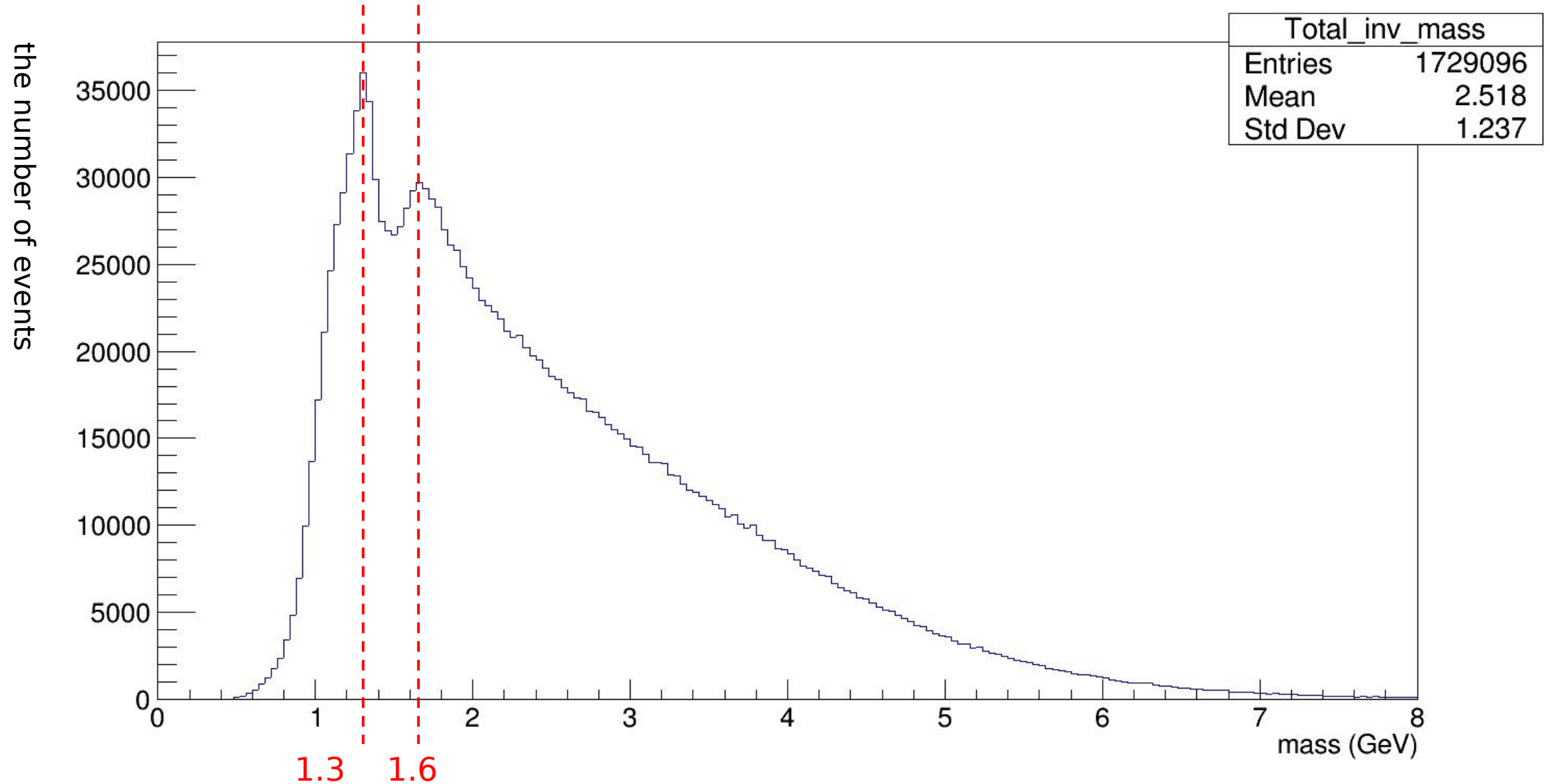
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invariant mass of pions and photons (photon energy cutoff 1 & 4 GeV)



The total invariant mass (Run = 69853)

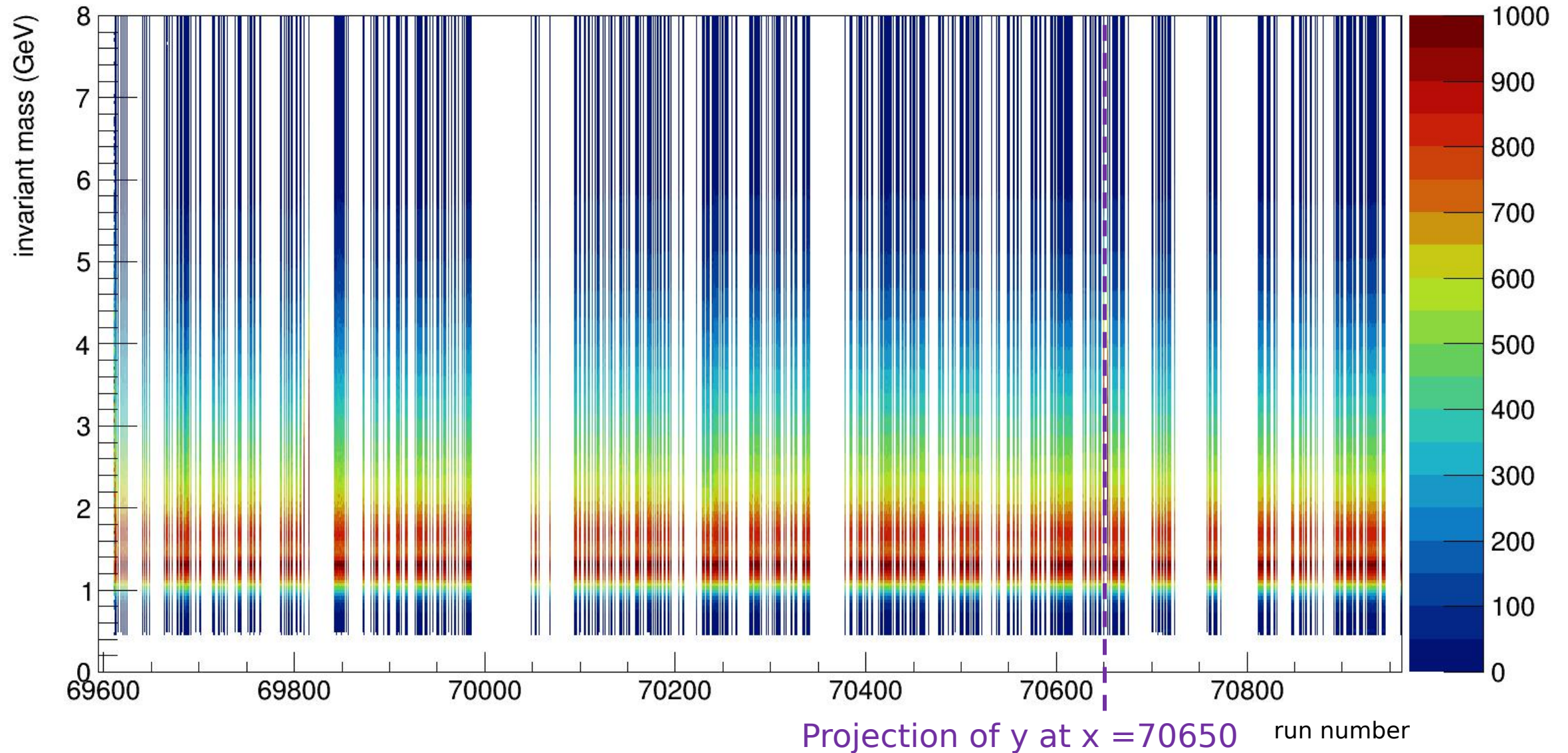
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The total invariant mass (normalized)

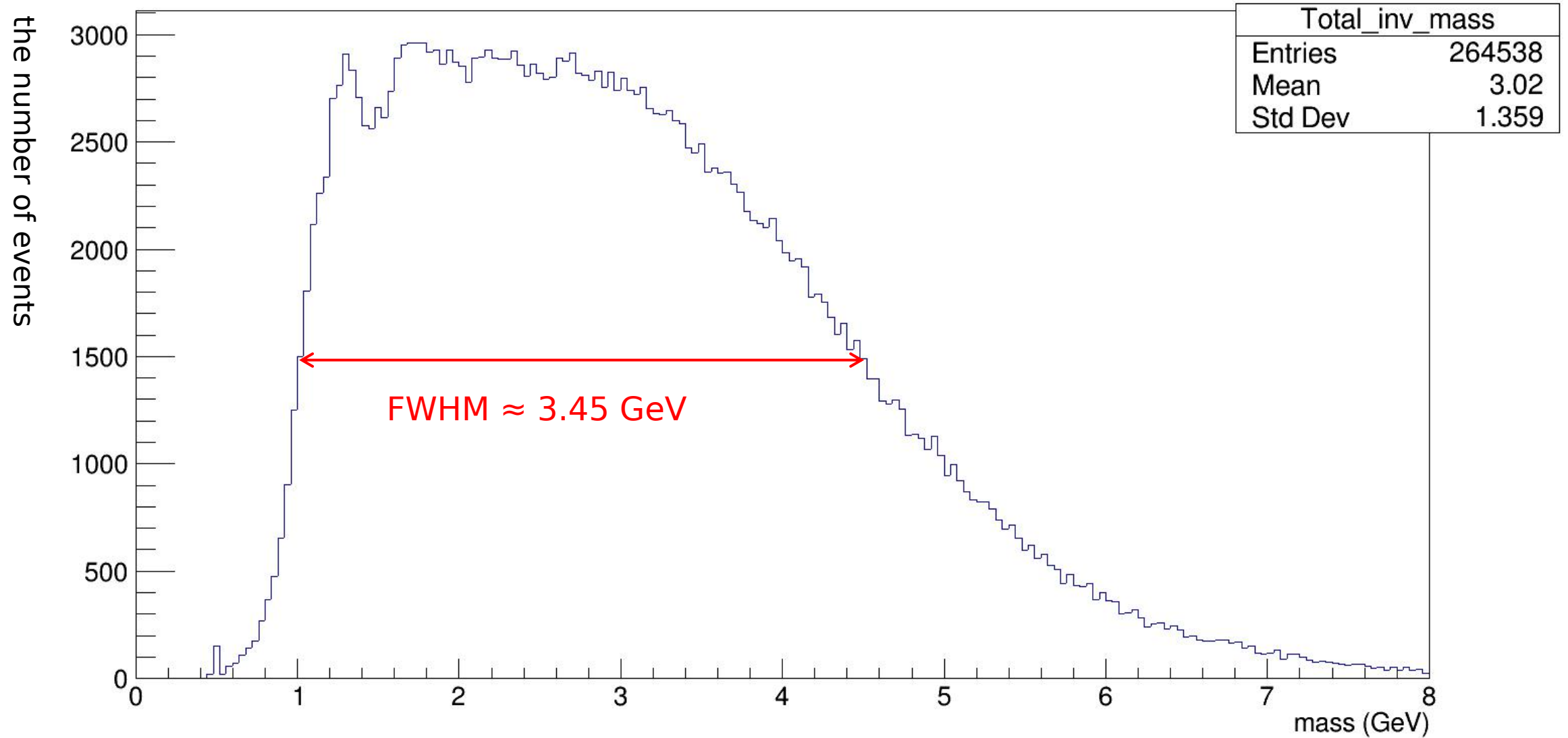
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invariant mass of pions and photons (photon energy cutoff 1 & 4 GeV)



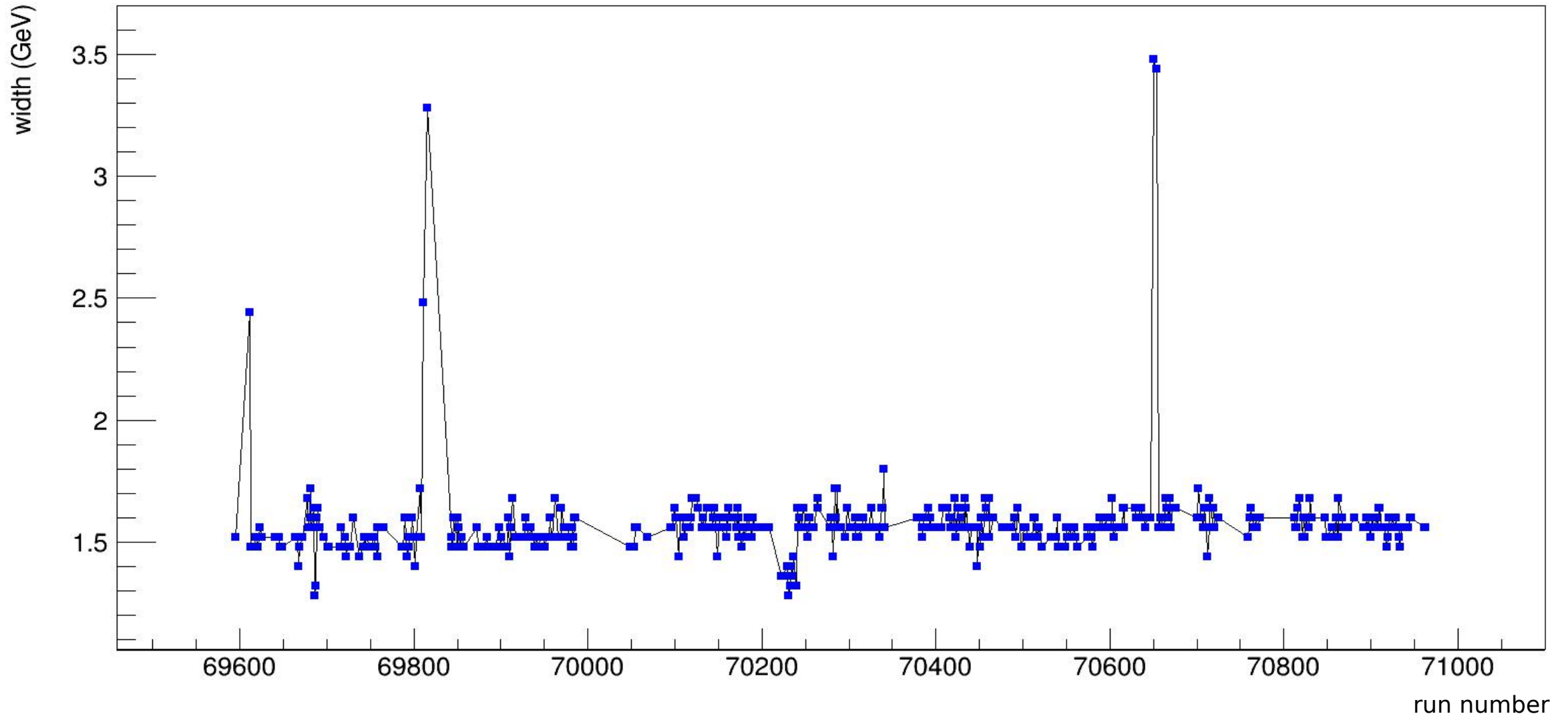
The total invariant mass (Run = 70650)

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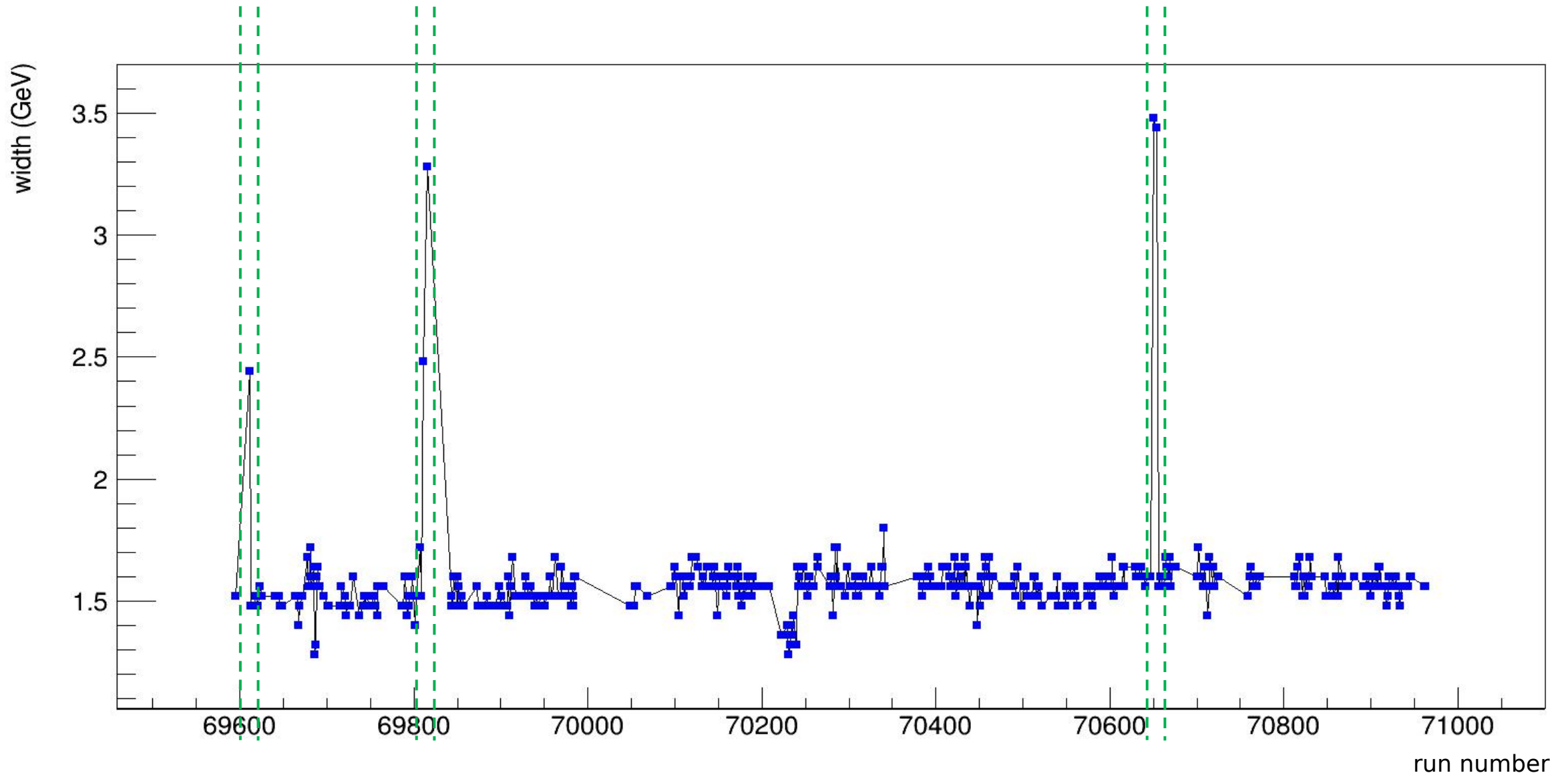
FWHM of total invariant mass

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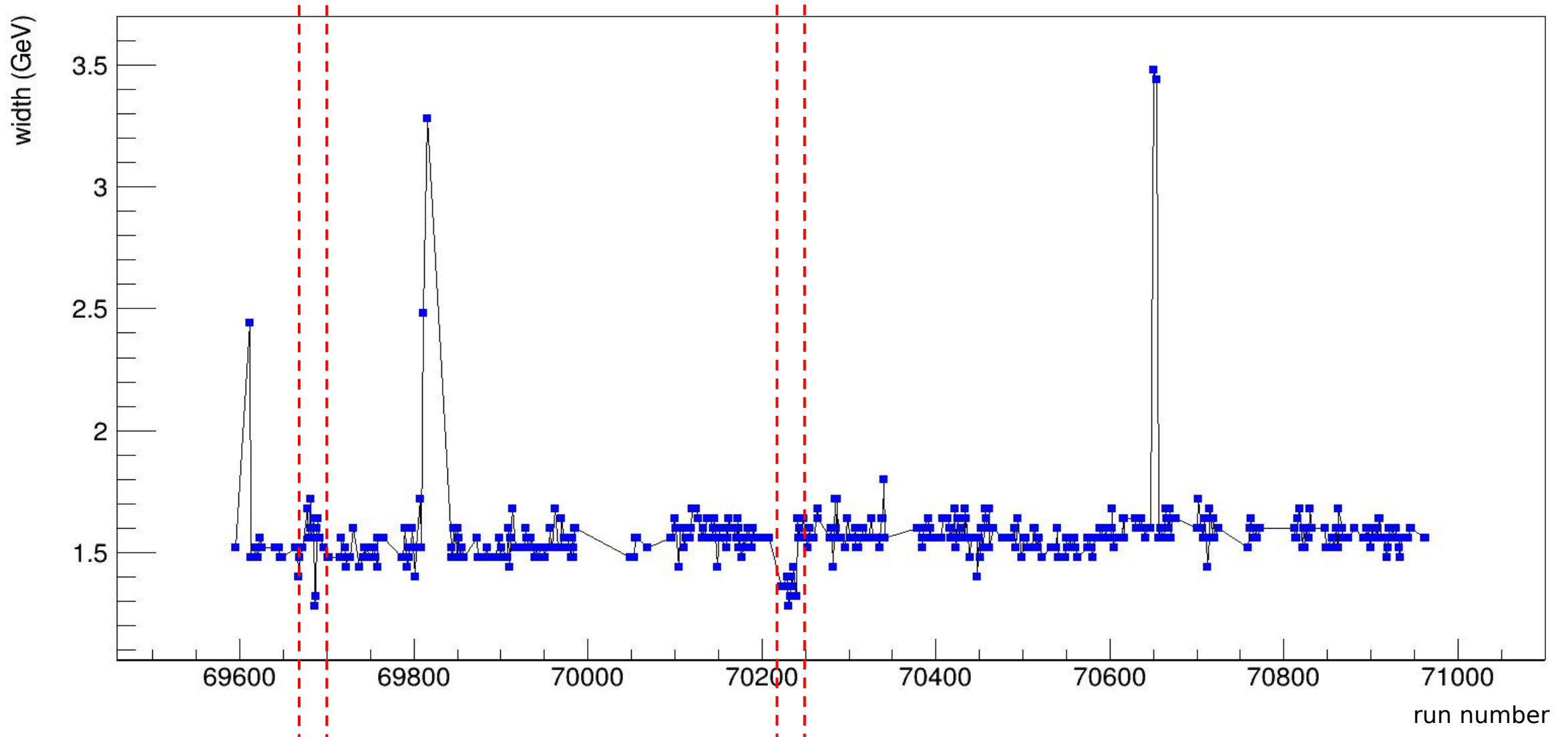
FWHM of total invariant mass

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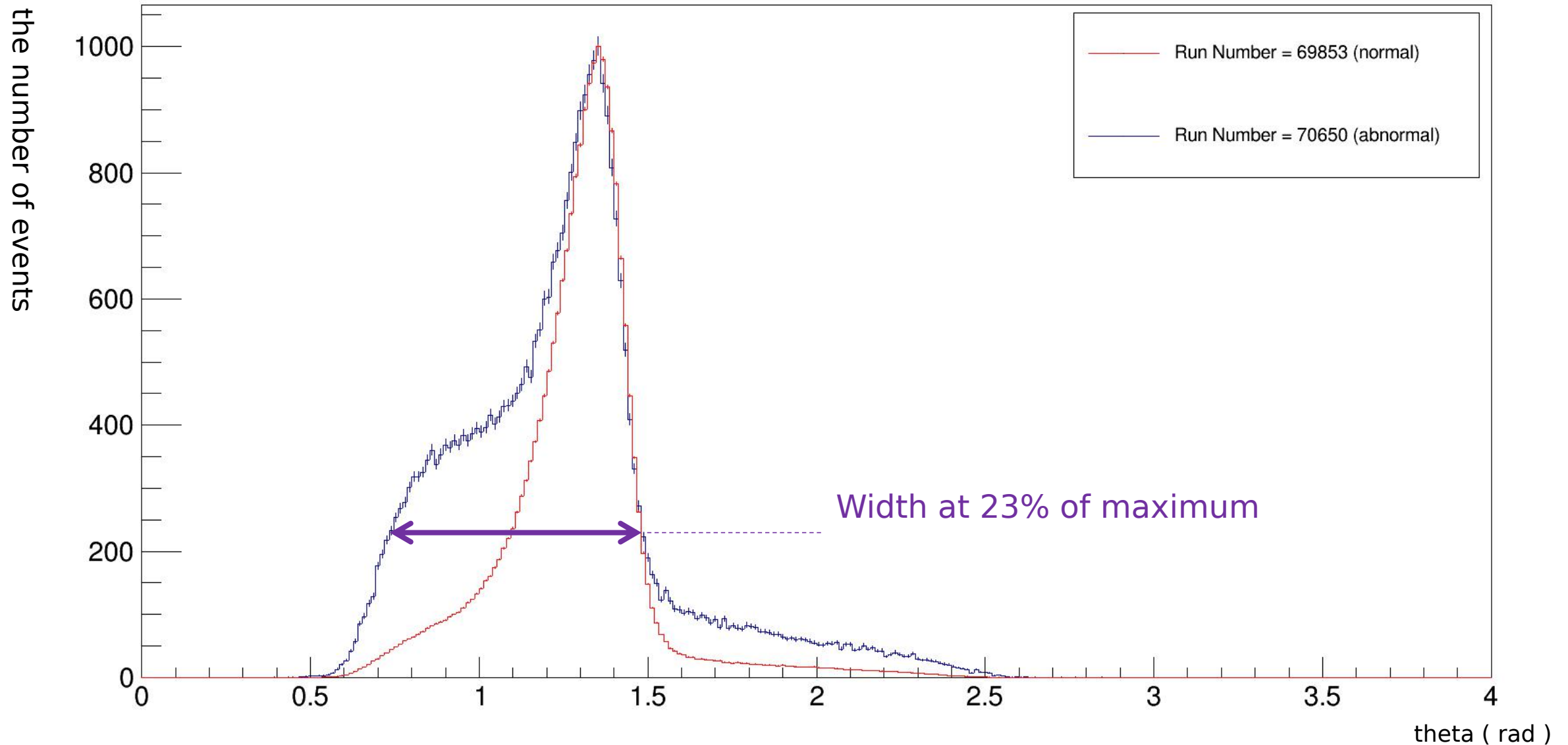
FWHM of total invariant mass

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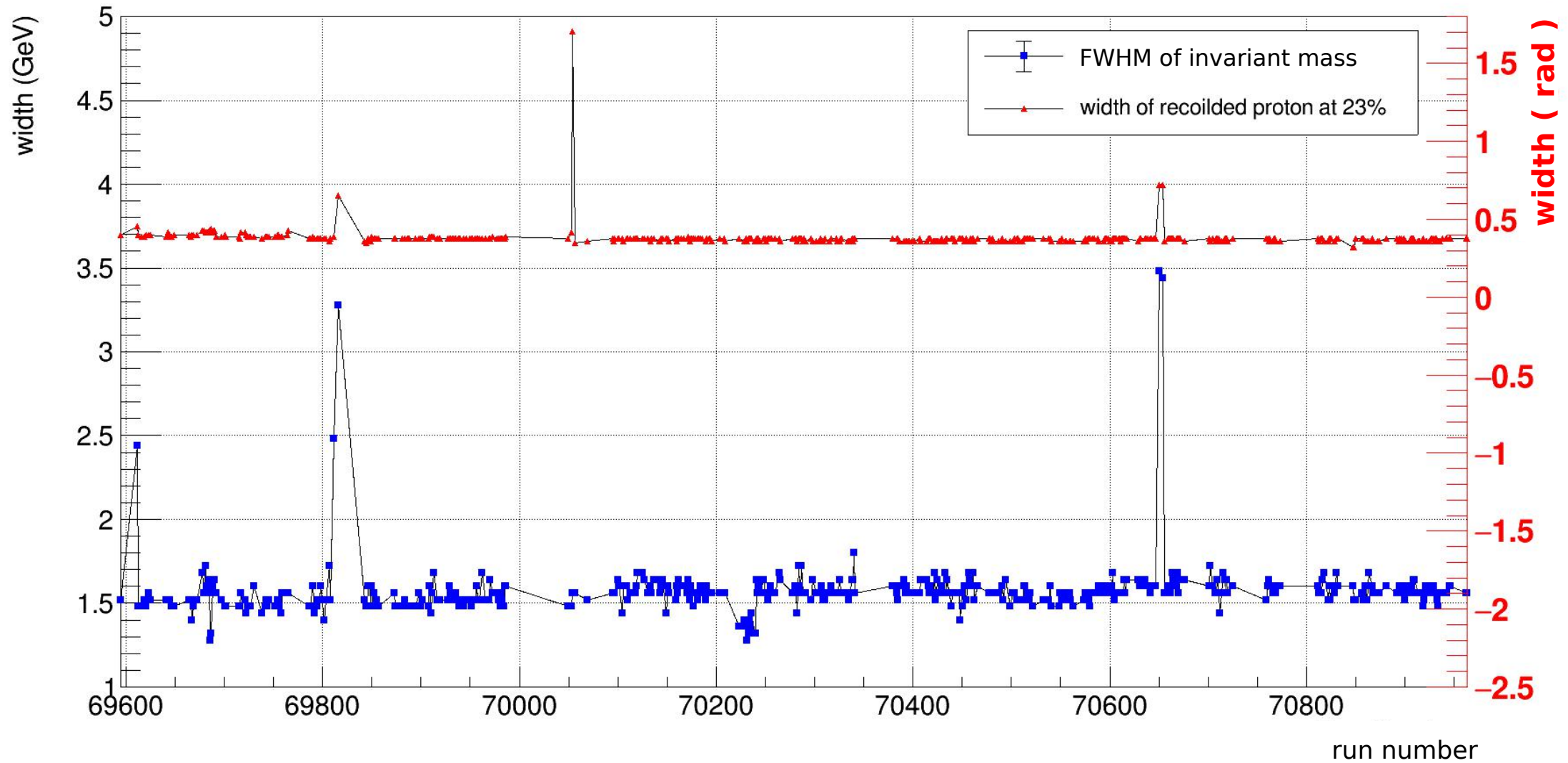
Recoiled Proton angular distribution

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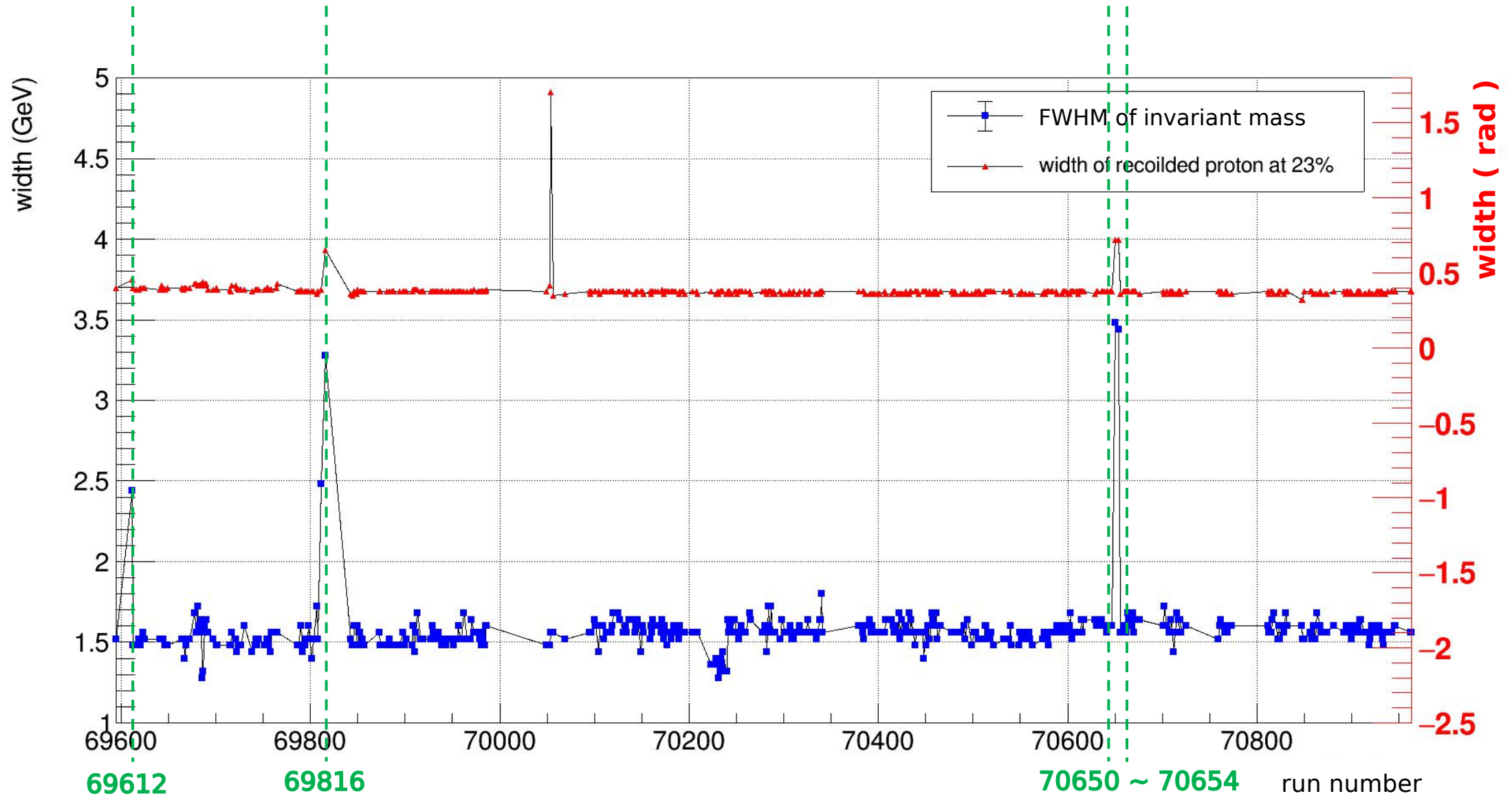
Comparison of widths from invariant mass and angles of recoiled proton

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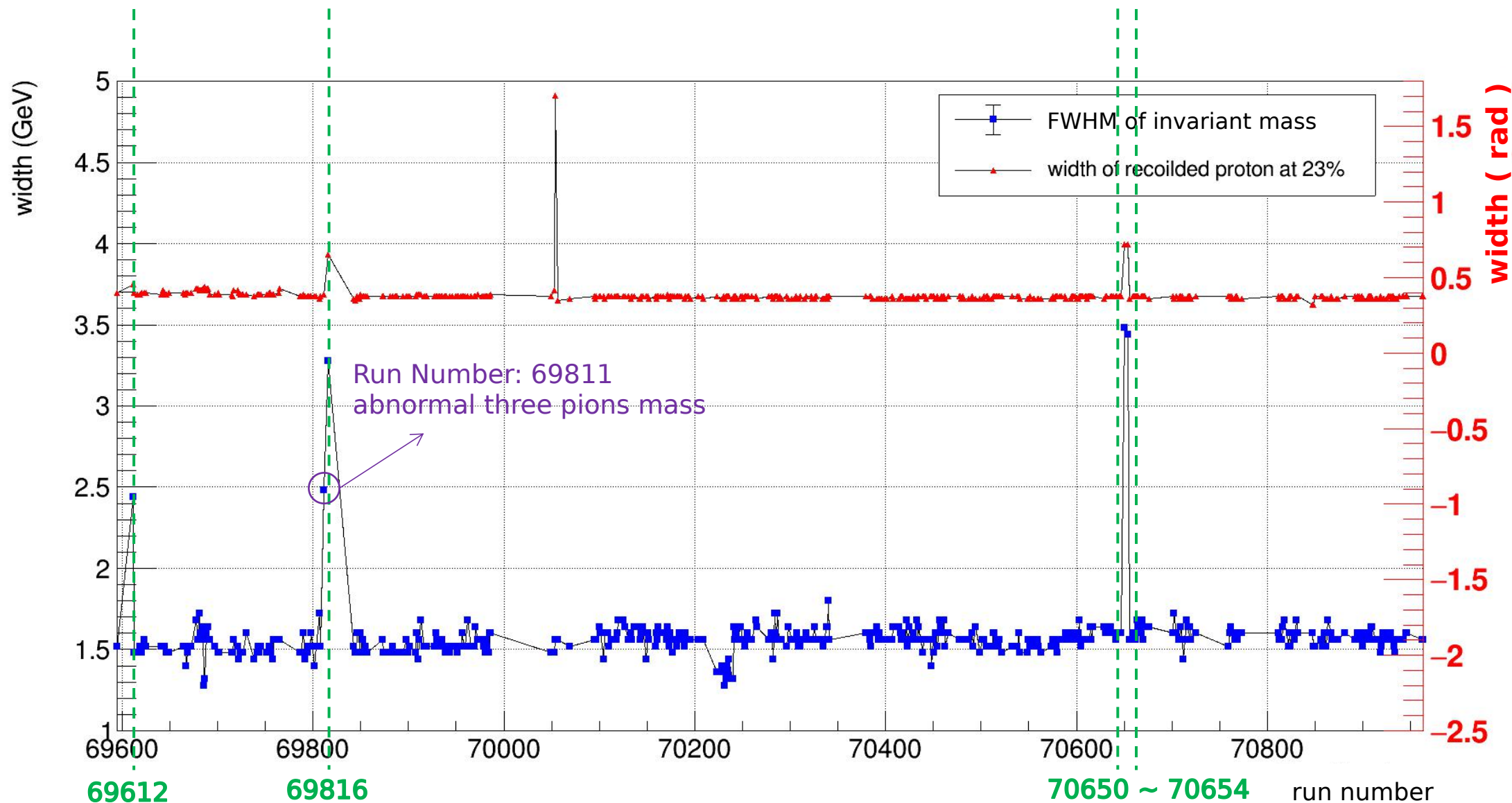
Comparison of widths from invariant mass and angles of recoiled proton

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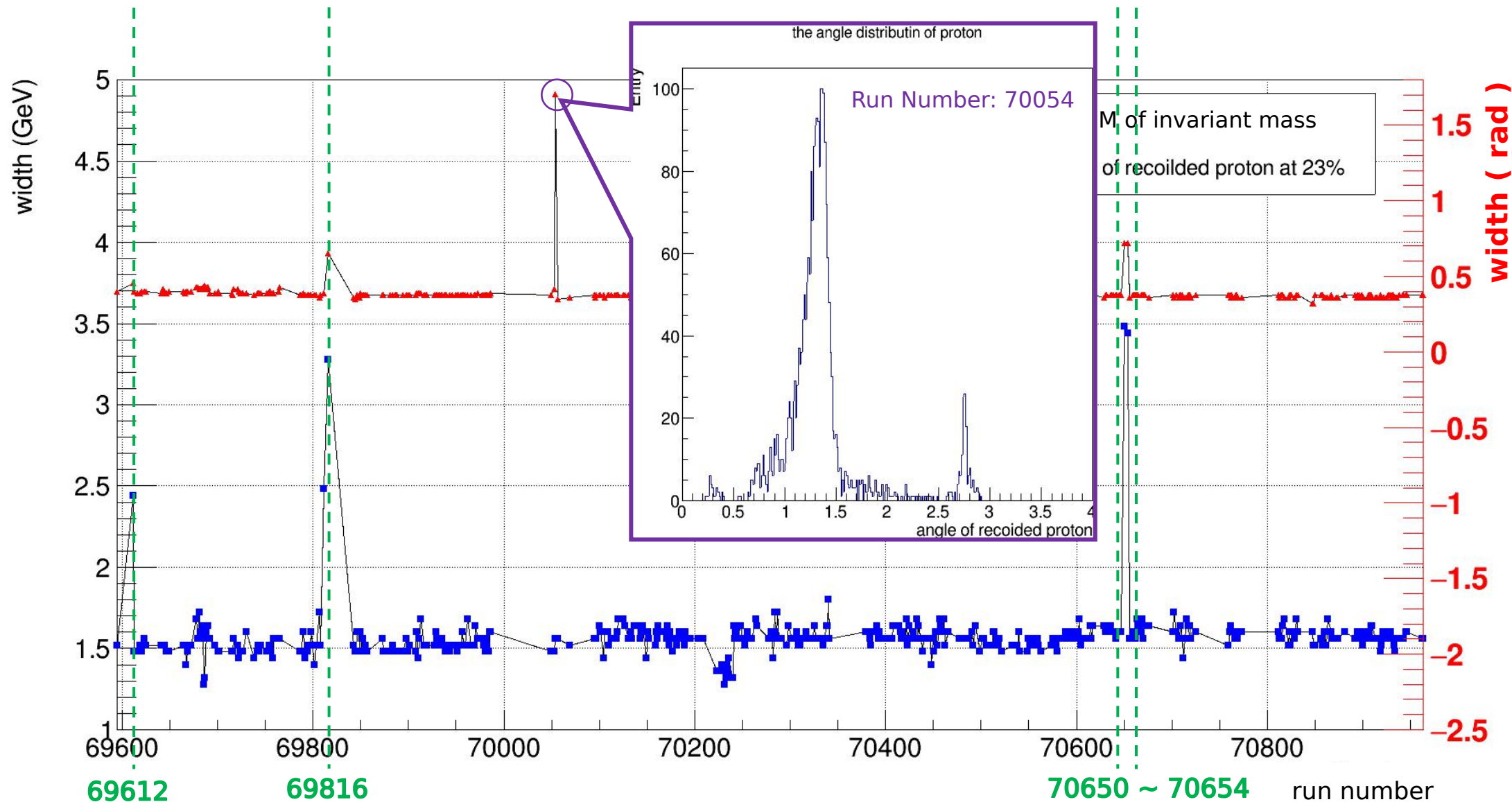
Comparison of widths from invariant mass and angles of recoiled proton

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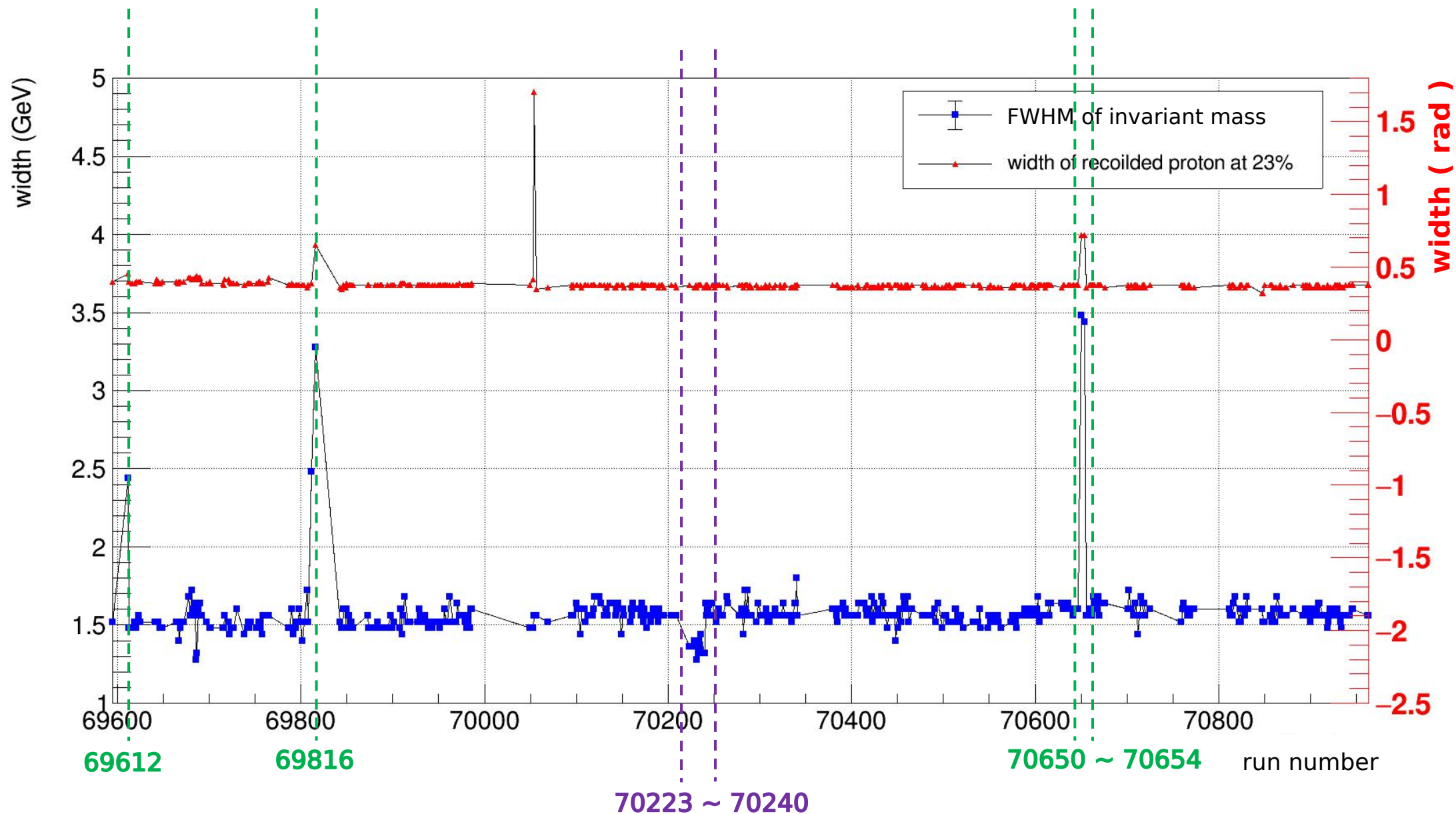
Comparison of widths from invariant mass and angles of recoiled proton

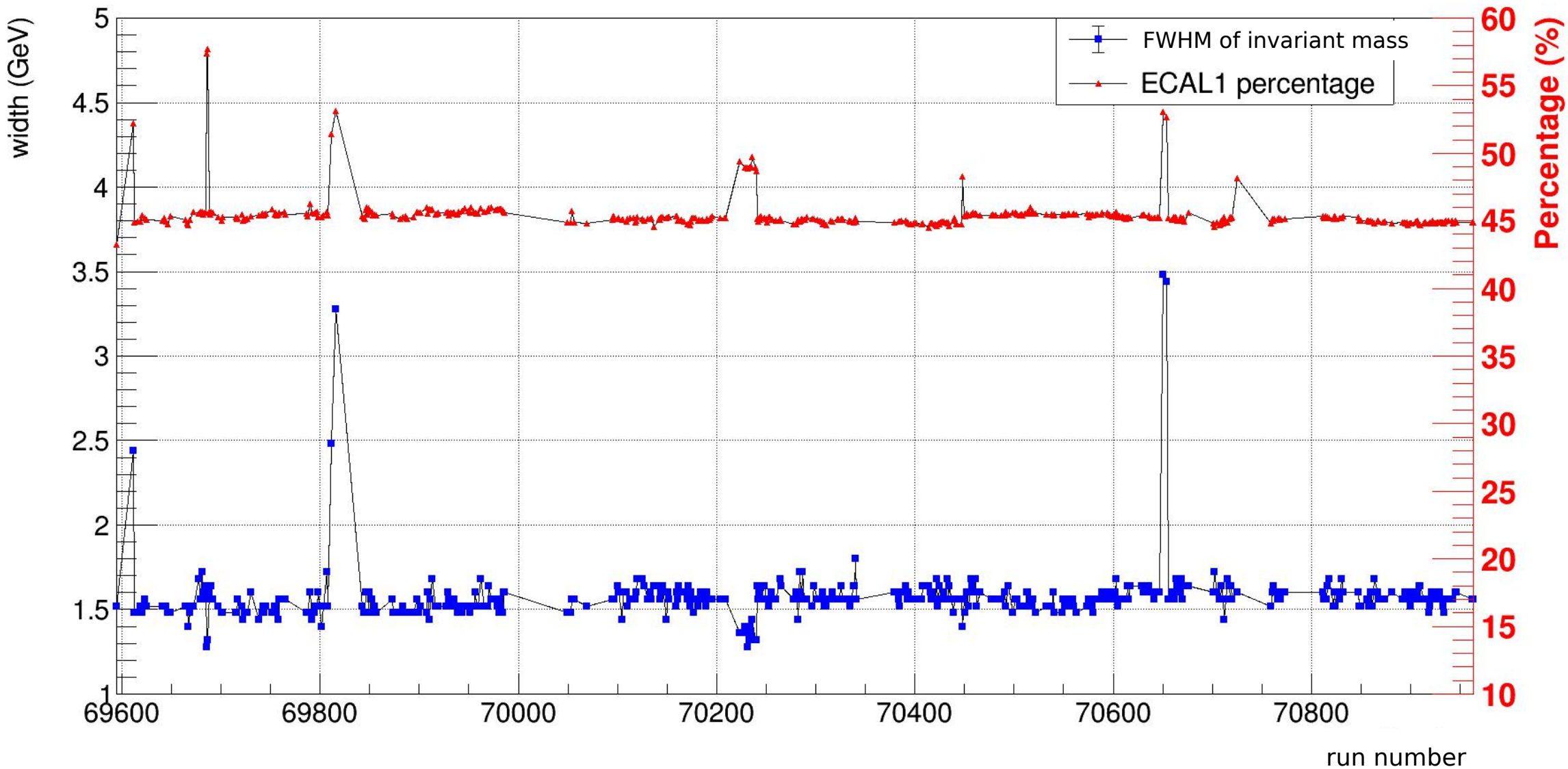
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Comparison of widths from invariant mass and angles of recoiled proton

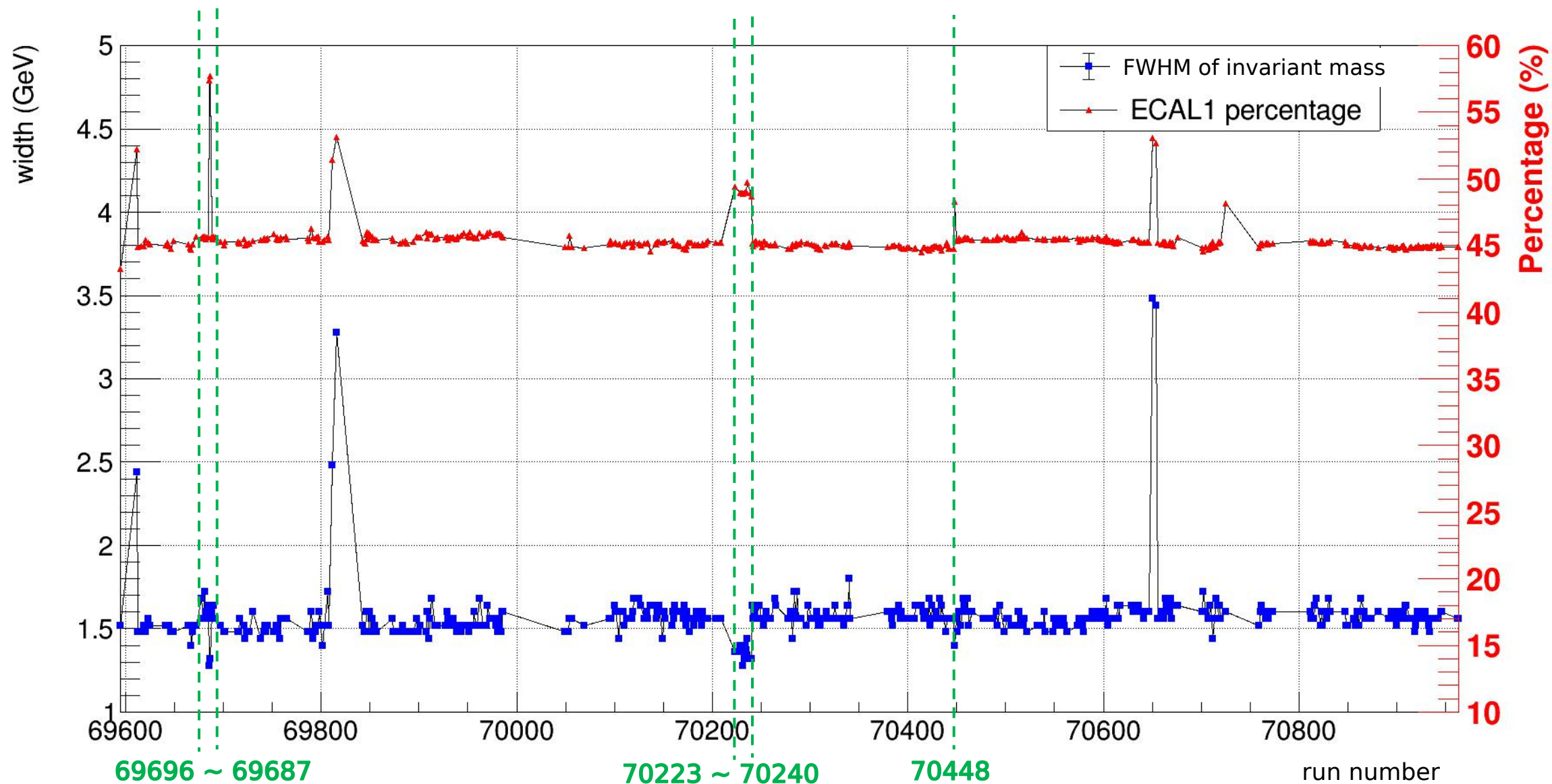
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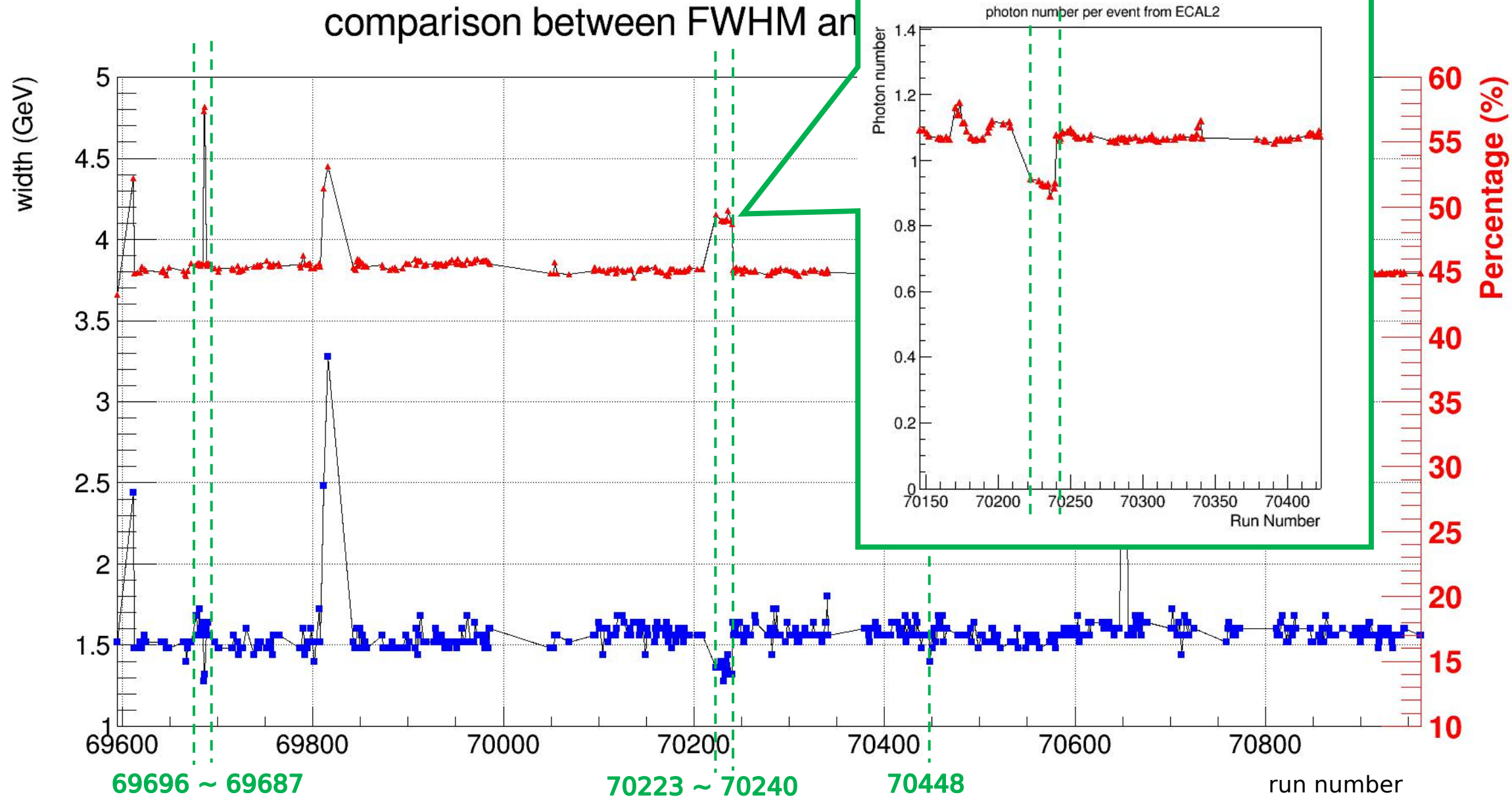


Comparison of ECAL1 percentage and FWHM of invariant mass

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Comparison of ECAL1 percentage and FWHM of invariant mass



Summary

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Run number	correlated parameter	Log book/Comments
70195	Disorder of Spill time	Good
69811	Three pion mass	Magnets were ramped up during run
70054	Double peaks for recoiled proton	Errors appeared for SrcId
69612	Recoiled proton angular distribution	N/A
69816		No sandwich veto
70650		Special run to test sandwich veto
70654		No sandwich veto
69696	Decrease of number of photons from ECAL2	Detector test
69687		Light trigger problems
70223 ~ 70240		High voltage trip on ECAL2
70448		Low intensity beam

End