# Trigger Validation – 14.2.20.1

David Strom and Ricardo Gonçalo on behalf of the trigger

# Trigger counts

## David Strom

- Stability of trigger counts being investigated: plenty of differences to understand  but doesn't look horrible
- R517 corresponds to the 1031 menu and r520 to default

| chain | 14.2.10.1 (r500) | 14.2.20.1 (r517) | 14.2.20.1 (r520) |
|---|---|---|---|
| L2_4j35 | 223.9 | 244.0 | 467.8 |
| L2_JE120 | 780.9 | 871.8 | 889.0 |
| L2_e20_loose | 317.2 | 318.5 | 364.3 |
| L2_mu20 | 286.0 | 290.3 | 294.7 |
| L2_mu4 | 321.5 | 321.5 | 471.6 |

# Muon Trigger Validation

## From Andrea Ventura and the muon slice validation team

A comparison between ttbar samples:

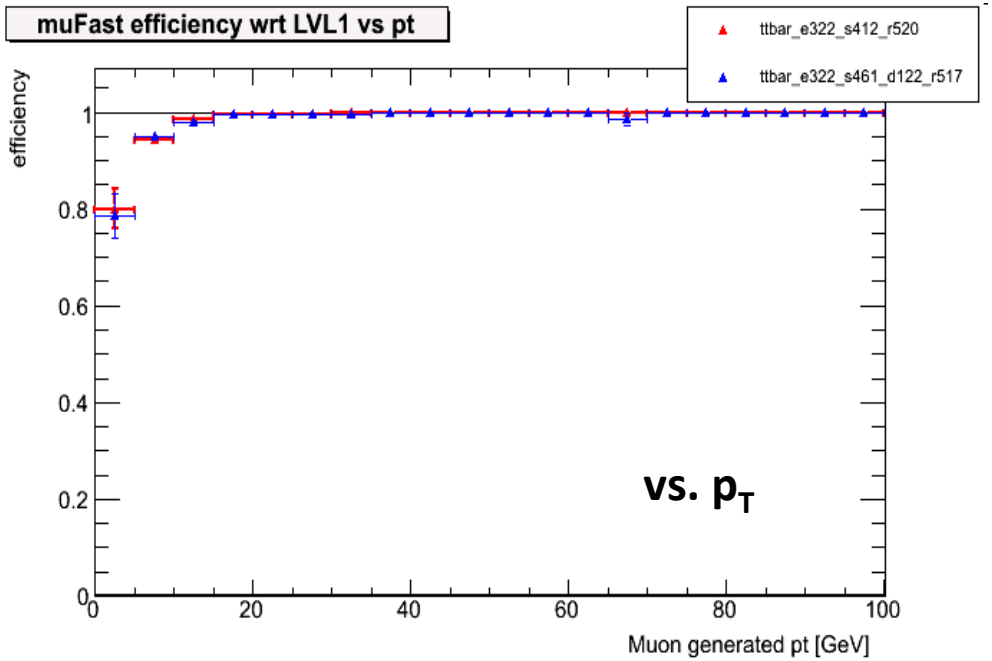
- GEO-02-01-00 (displaced vertex) : e322_s461_d122_r517 [14.2.10.1]
- CSC-02-01-00 : e322_s412_r520 [14.2.20.1]

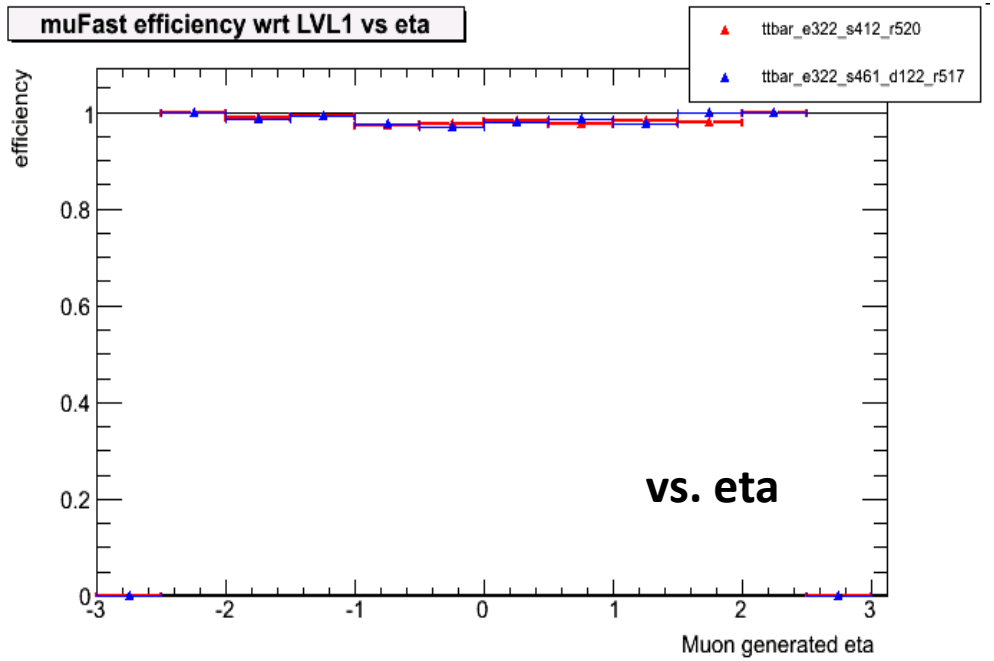
✓ 5000 events used for each sample

✓ MS-only algorithms have comparable performance

✓ Muon extrapolating/combining algorithms perform worse with vertex displacement (as expected)

# LVL2: muFast efficiency wrt LVL1

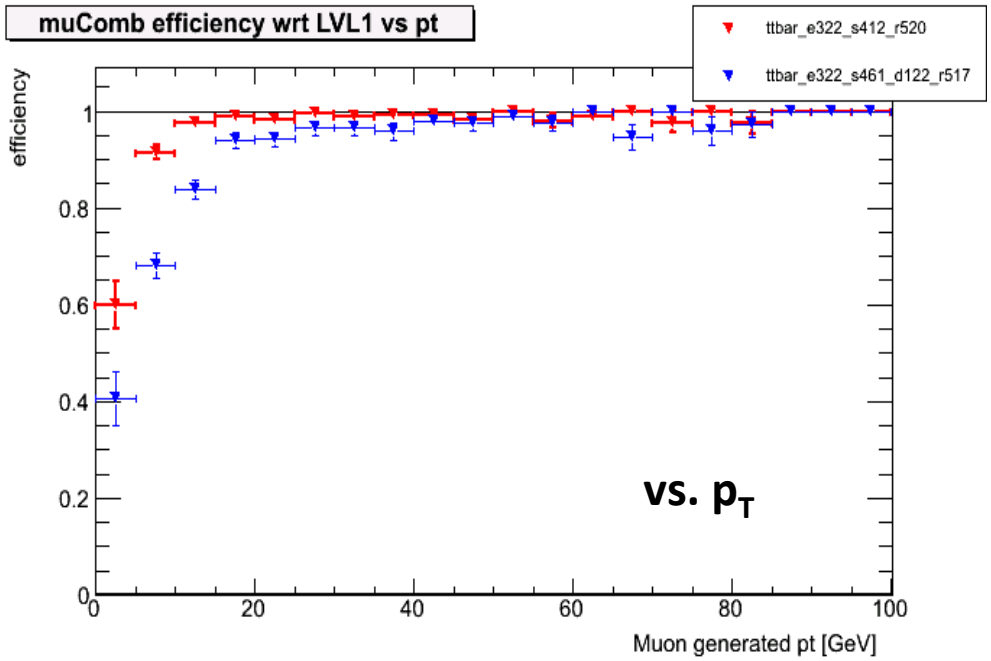


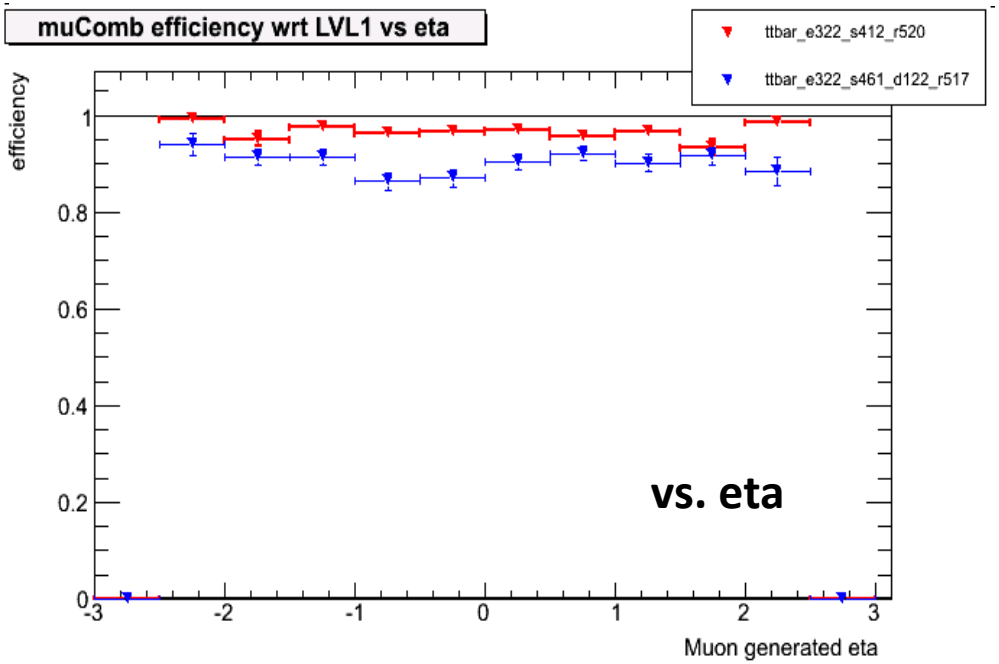




GEO-02-01-00 [14.2.10.1]
CSC-02-01-00 [14.2.20.1]

- No effect of vertex displacement on muFast efficiency

# LVL2: muComb efficiency wrt LVL1

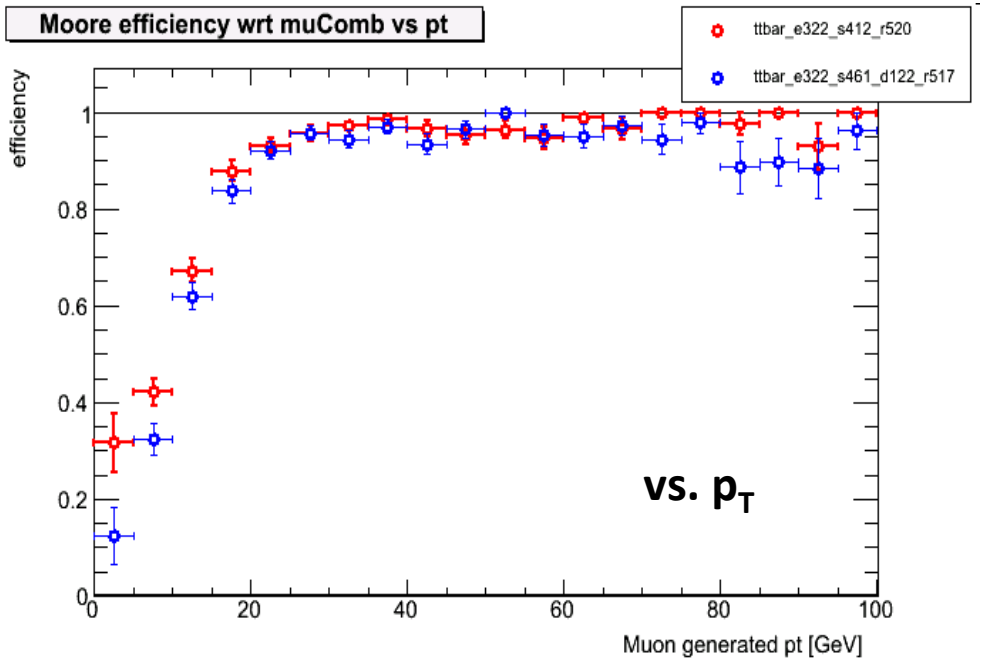


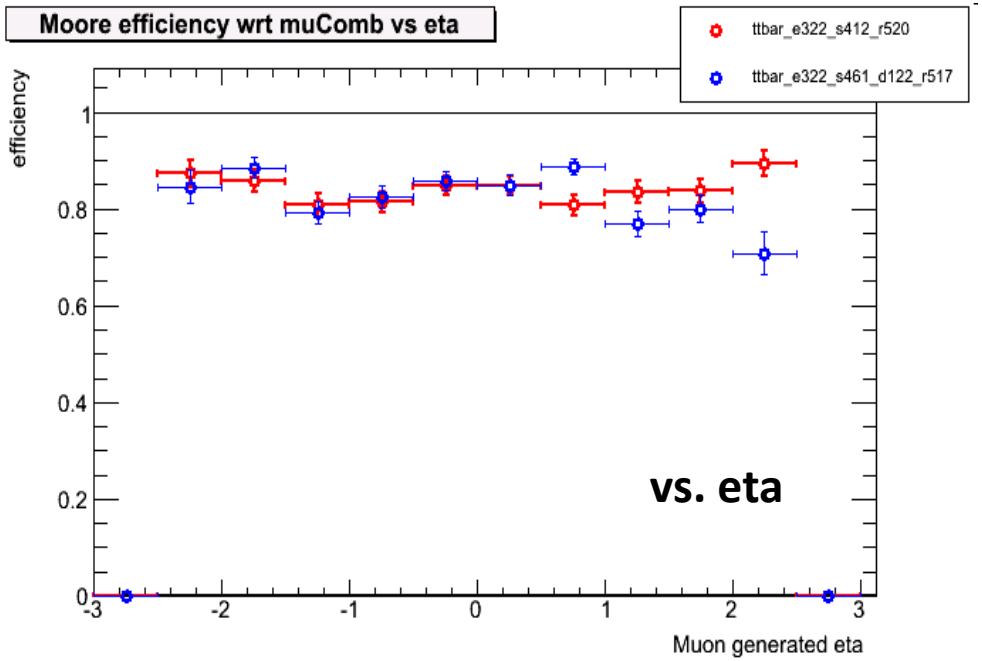




GEO-02-01-00 [14.2.10.1]
CSC-02-01-00 [14.2.20.1]

- Vertex displacement affects muComb efficiency at low $p_T$
- Reconstruction efficiency under control with 14.2.20.1

# EF: MS reconstruction wrt LVL2

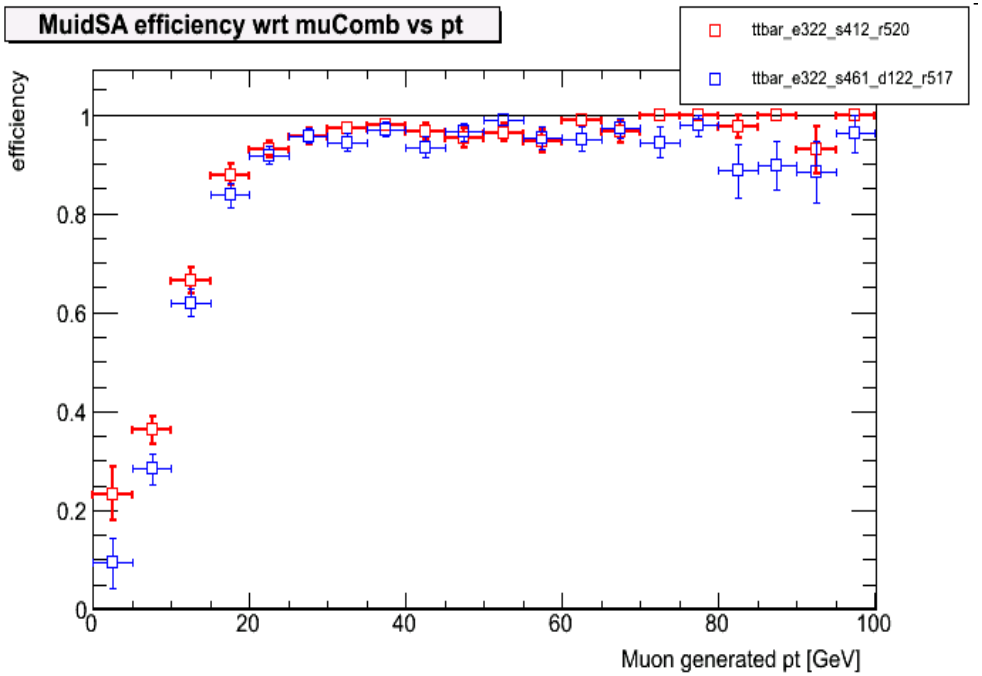


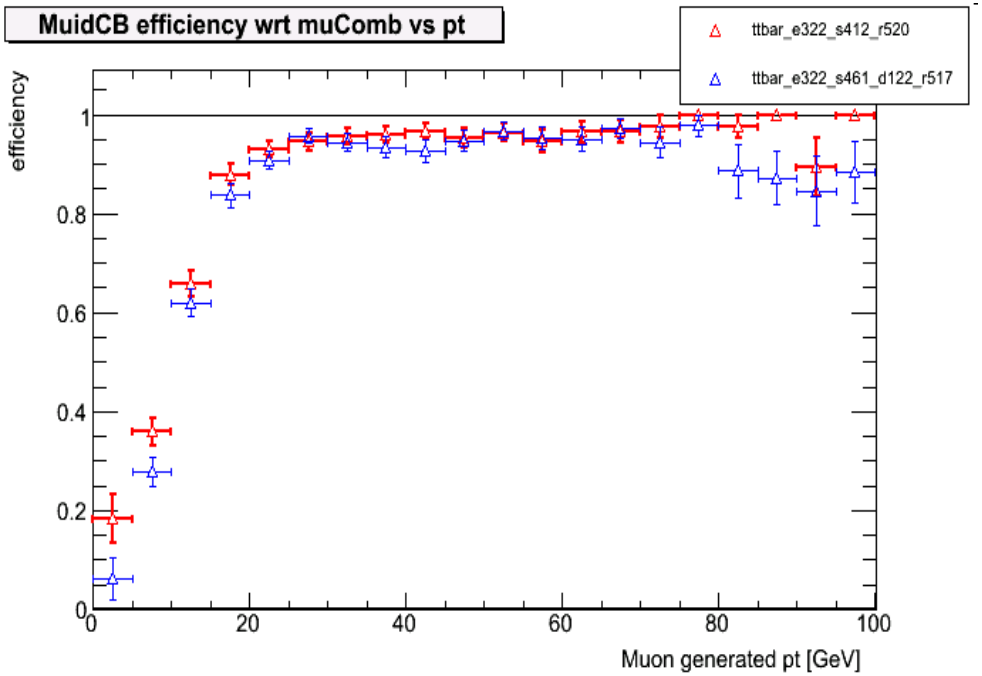




GEO-02-01-00 [14.2.10.1]
CSC-02-01-00 [14.2.20.1]

- Vertex displacement affects Moore efficiency at low $p_T$
- Similar results for TrigMuonEF (not shown here)

# EF: Muon extrapolated and combined reconstruction wrt LVL2

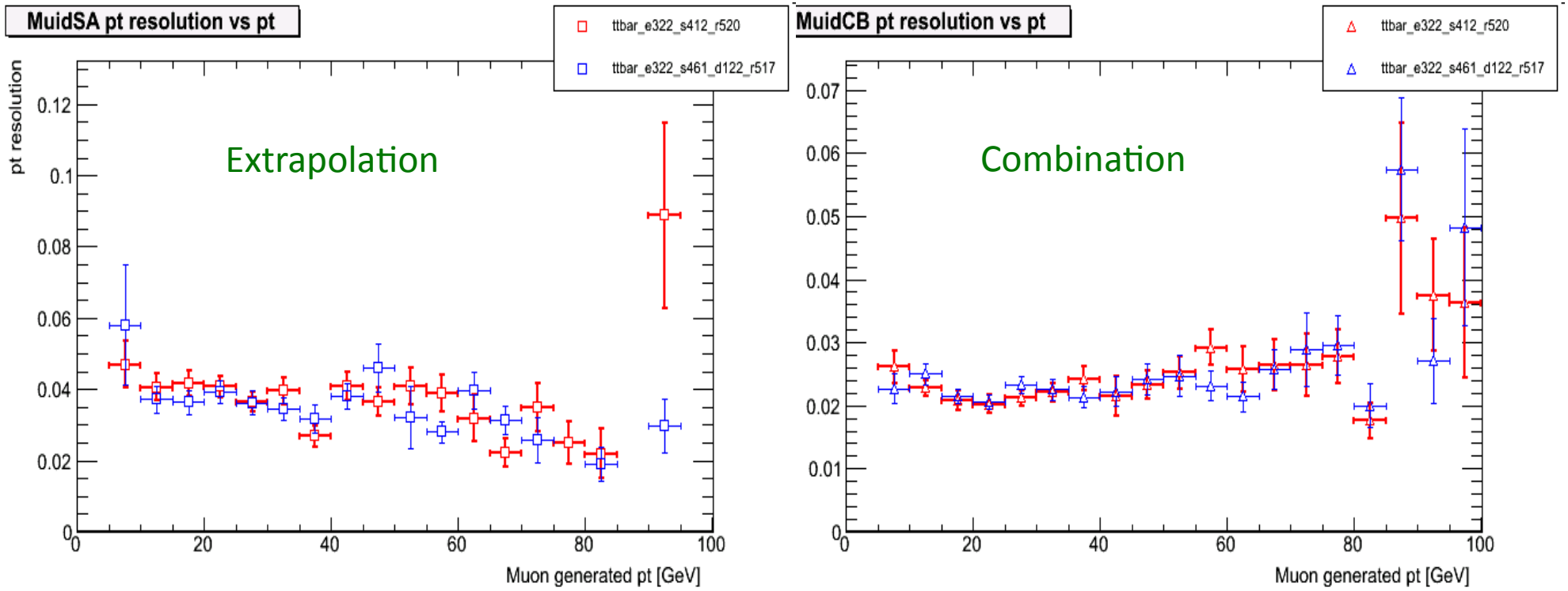



GEO-02-01-00 [14.2.10.1]
CSC-02-01-00 [14.2.20.1]

- Vertex displacement affects muon EF efficiencies at low $p_T$
- Performance as expected with CSC-02-01-00

# Muon EF: $p_T$ resolution




GEO-02-01-00 [14.2.10.1]
CSC-02-01-00 [14.2.20.1]

- No significant differences between the two scenarios considered (note different vertical scale)