Status

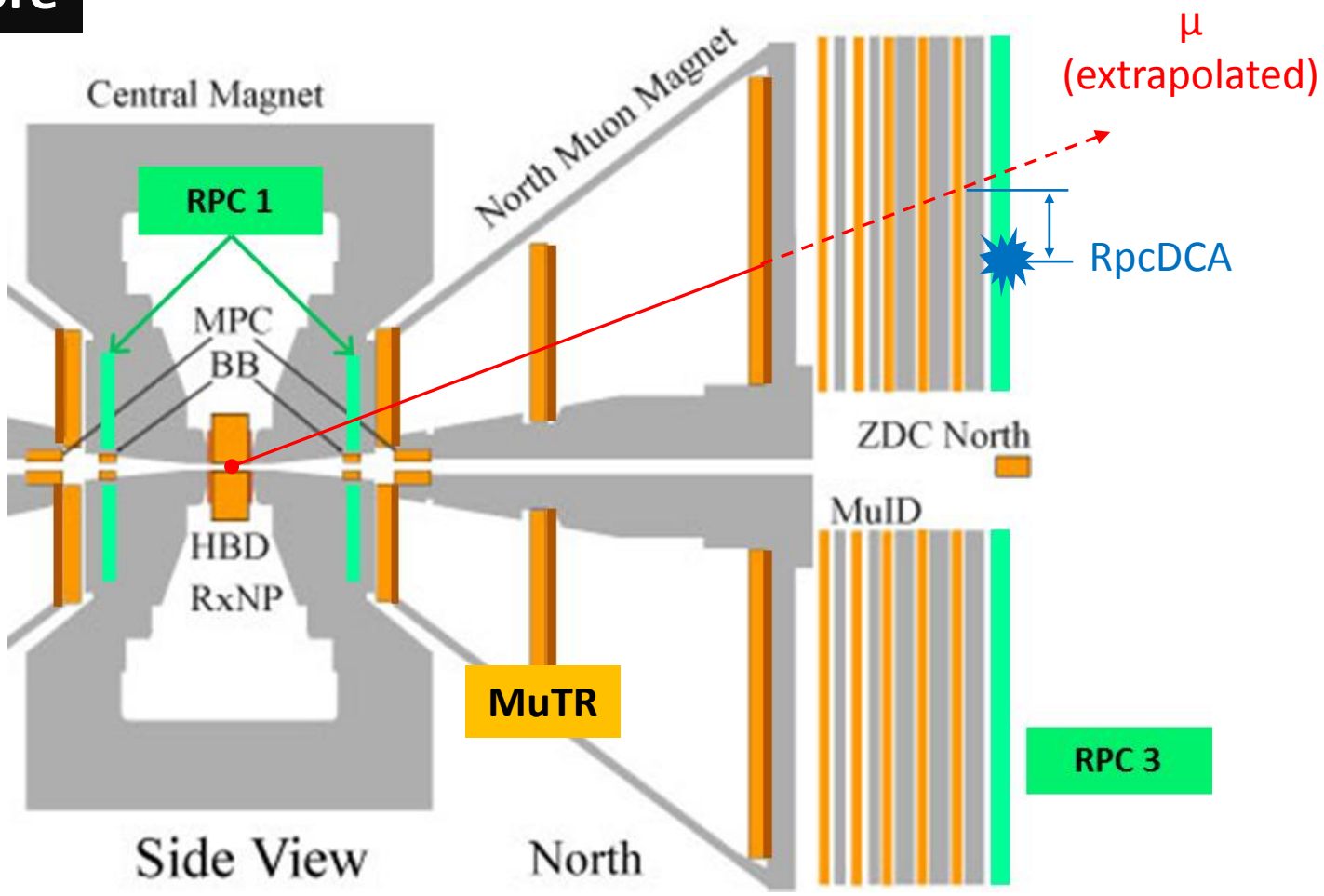
- Ratio study of μ tracks by using RpcDCA
  - Still trying to understand anomalies:
    - Step-like increase of p (momentum) in low p region
    - 'Jump' like behavior near Run 367500
  - Got new lead from Ralf in this Wednesday:
    - pp200GeV official pDSTs produced:
      Contain relatively 'matched' and 'refined' data with **newly updated variables**
    - Data extraction (for this study) is ongoing
- Study for PHENIX trigger system
  - Couldn't found specific documents for trigger logic
  - Contacted to John Lajoie (PHENIX trigger official), waiting for his reply

Ratio study of μ tracks by using RpcDCA

- Collected variables: Run #, triggerbit, triggerlive, p, p_T, η, and **'RpcDCAs'**
- Collected all available entries from pp510GeV runs which satisfies basic cuts
- Took ratio of (μ tracks with **basic cuts + RpcDCA cuts**)/(μ tracks with **basic cuts**)
  - Basic cuts:
    - |Evt_bbcZ| < 30
    - lastGap == 4
    - DGO < 30
    - DDG0 < 10
  - RpcDCA cuts:
    - RpcDCA != -9999 (applied before fill histograms)
    - |RpcDCA| < 15
- Updates in official pp200GeV pDSTs:
  - RpcDCA → Rpc3DCA (by Vtx, MuTR-St1, MuTR-St3, and MuID), Rpc1DCA

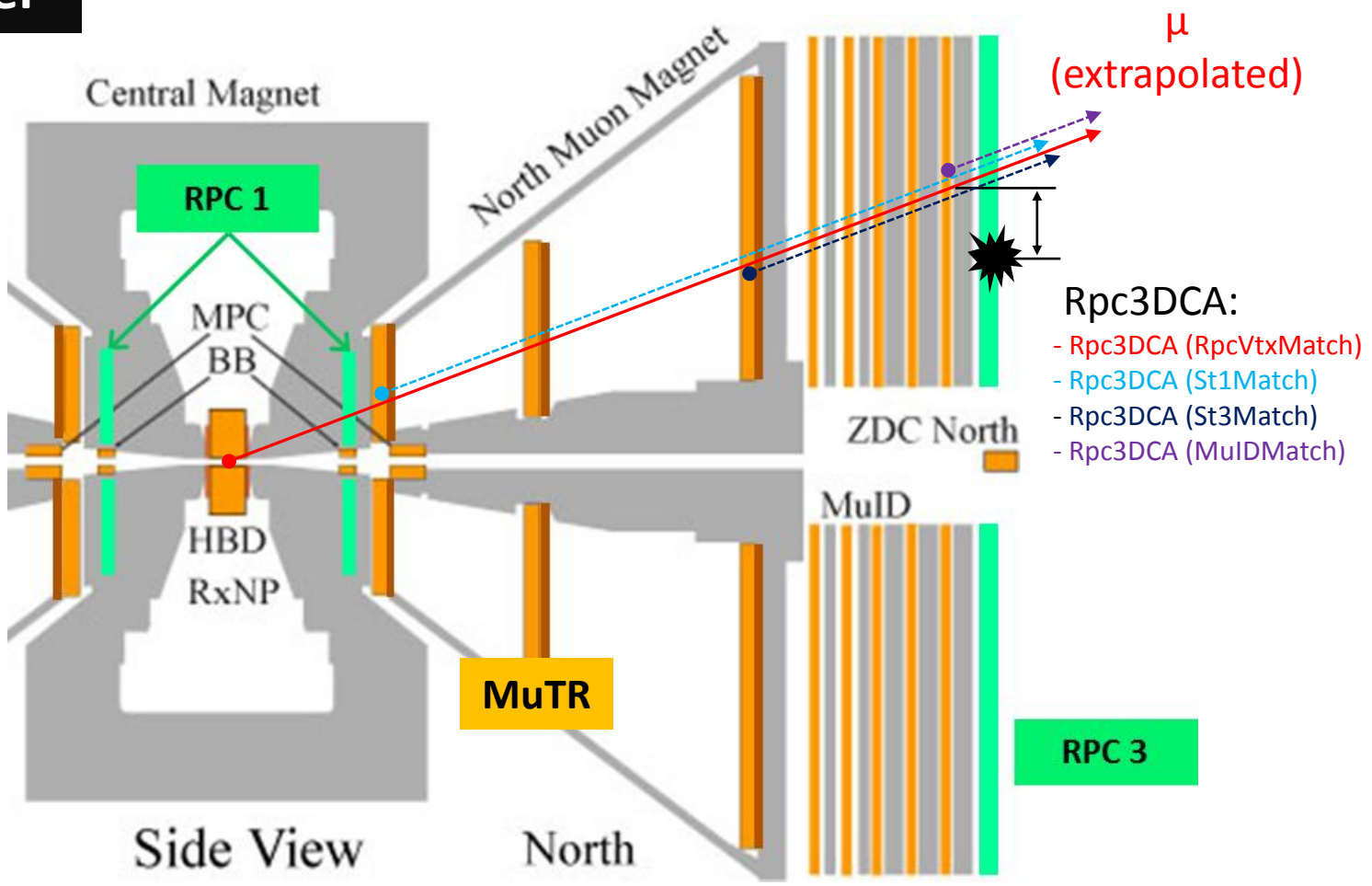
Ratio study of μ tracks by using RpcDCA

Before



Ratio study of μ tracks by using RpcDCA

After



To do

- Understand trigger logic clearly (at least required conditions)
- Play with newly updated variables:
  - Need to fully understand each variable first
- Quarterly forward upgrade meeting in coming Monday:
  - Plan to show new ratio study results
  - No RPC efficiency study updates

Backup

- Evt_bbcZ: BBC vertex z position from the PHGlobal node
- lastGap: last hit position of the reconstructed μ track in MuID
- DG0:

  MuTr track, MuID road matching parameter which give the **difference** between the extrapolated track and the road at the MUID Gap0
- DDG0:

  MuTr track, MUID road matching parameter which give the **slope difference** between the extrapolated track and the road at the MUID Gap0
- **RpcDCA:**

  transverse distance between the muon tracks' position projected to the RPC3 z position and the closest RPC hit cluster in cm