Validation of Roads

- Run 11674
- Bit 0 electron all sec
- Bits 1-6 sector based electron trigger
- Bit 7 Electron with DCRoads, All sec
- Bits 8-13, Electron with DCRoads, sector based

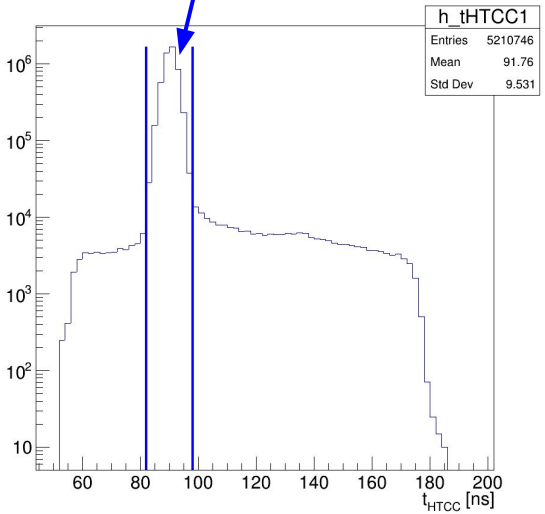
Roads are Fast MC based

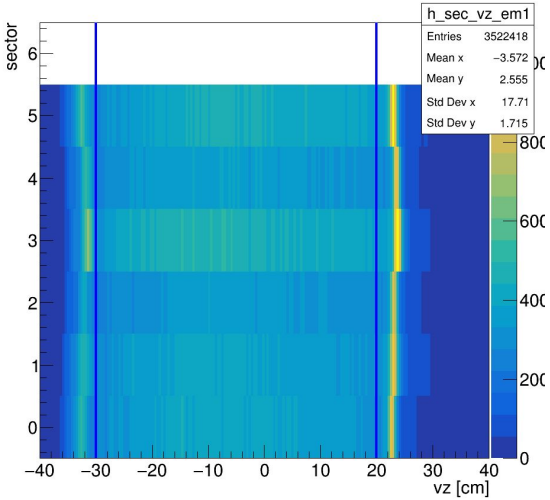
- Select electrons, make sure the electron bit of the given sector is fired (In this case practically it is almost always satisfied)
- Check whether the trigger bit of the electron with DC-Roads is fired for the given sector
- Study events with missing trigger bits.

Notes:

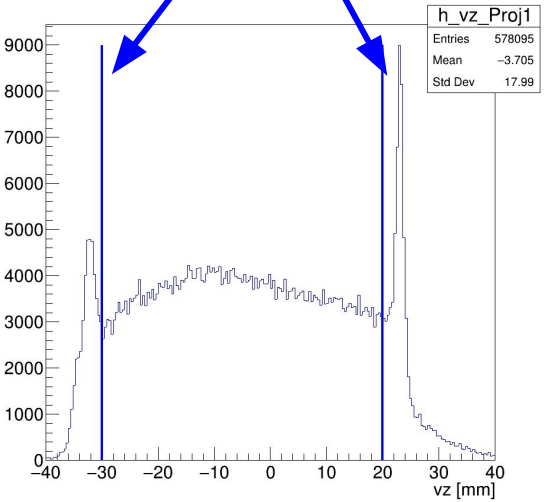
- Sector 1 DC triggers were broken for this run, so the discussion is for sectors 2-6
- In the offline recon for some reason almost all (few exceptions) events were reconstructed 5 time, i.e. same event Is written in the output file 5 times, and therefore histogram bin contents are multiples of 5.
    - This is not an issue, since for the efficiency both numerator and denominator multiply counted by the same factor.

Electrons causing the trigger





Cutting on vertex

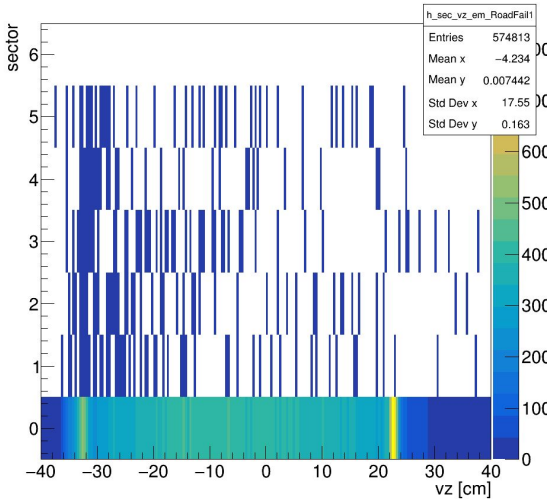


Select electros with 82 ns < t_HTCC < 98 ns

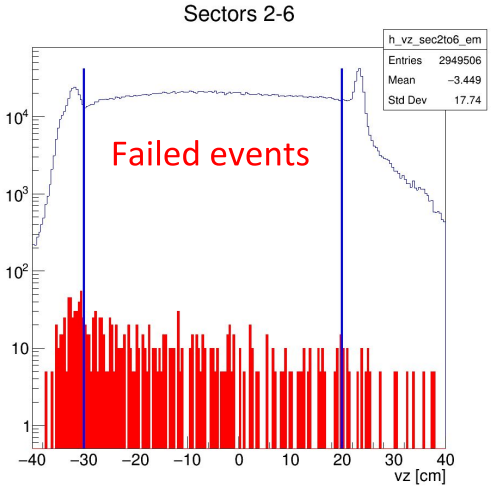
The vertex is not centered at 0, so the cut placed is from -30 cm to 20 cm

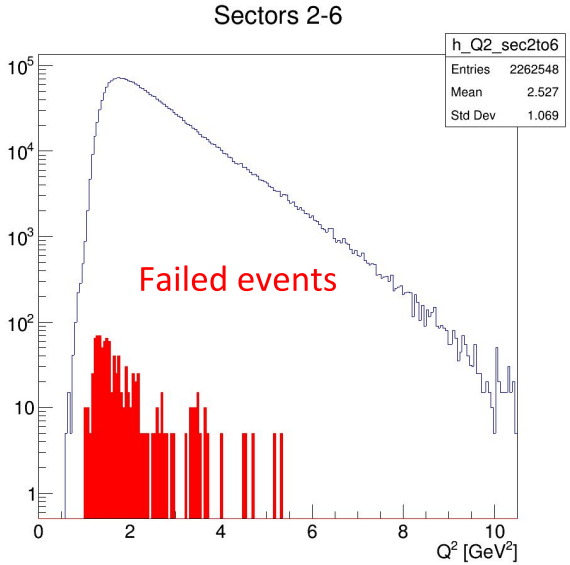
Failed events

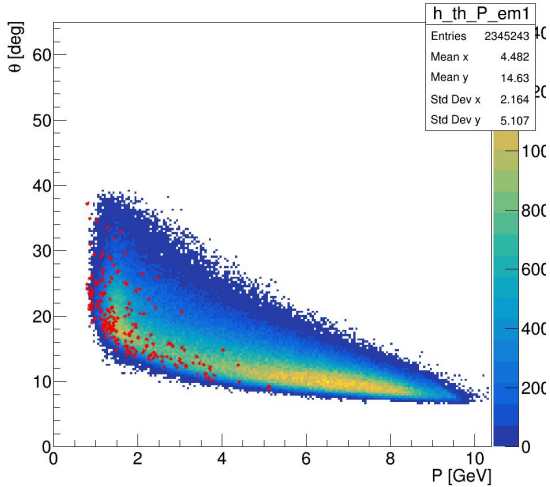
Only Events inside the vertex cut

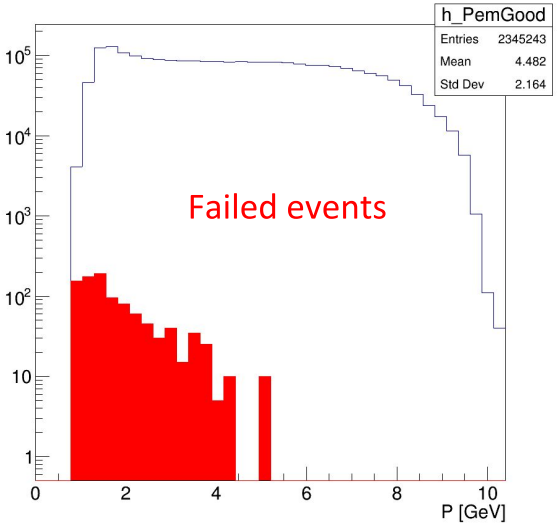


Sec1 was not working during this run

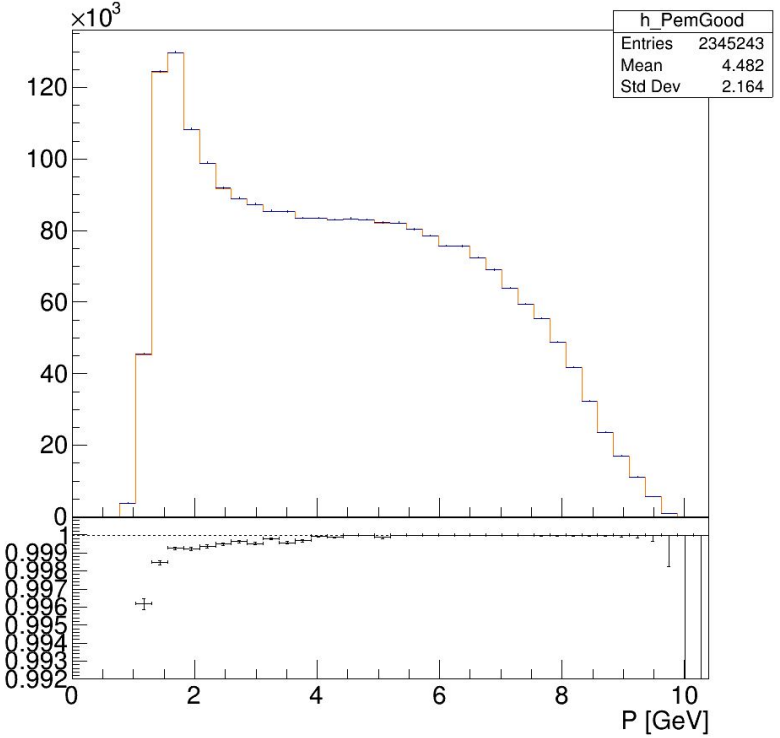








Road efficiency plot as a function of momentum



Summary

- The overall inefficiency from DCroads is below 1%
- Above 2 GeV the inefficiency is even smaller
- Sector 1 DXtrigger was not working during this run, however we don’t see an indication that that could be bad