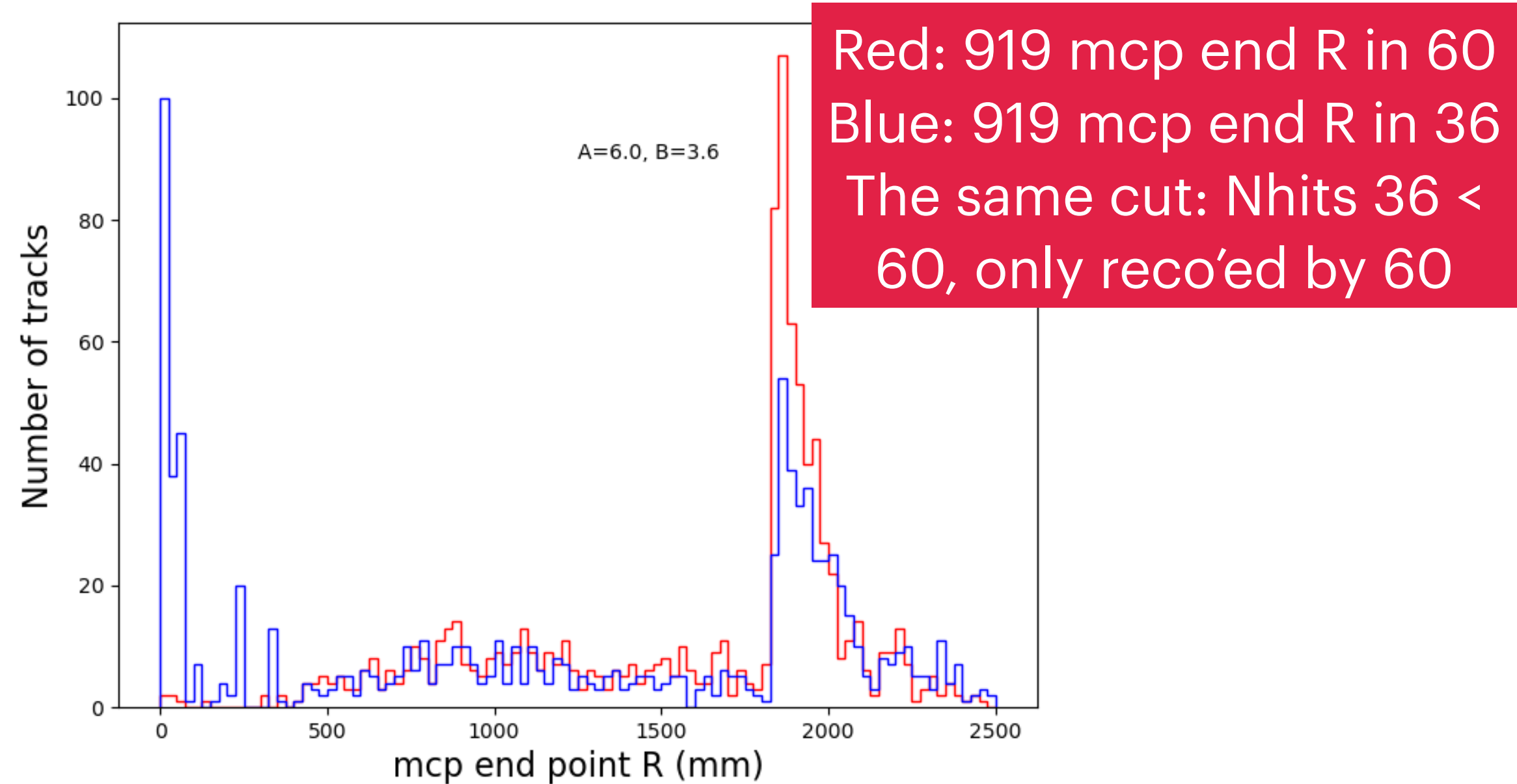
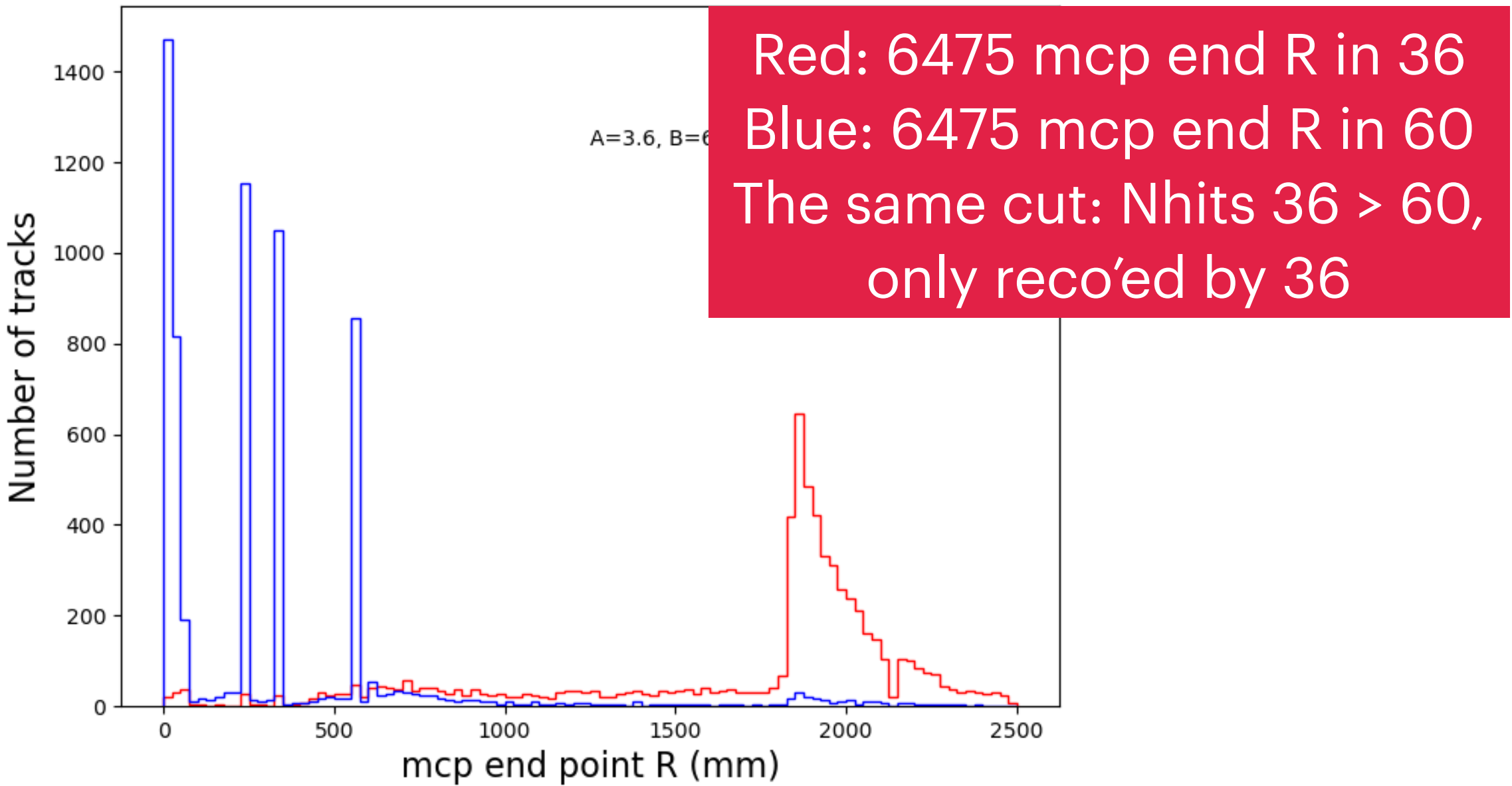


Trk Eff: 25.3.6 vs. 25.6.0

| Nmcp | | tdr25.3.6 | tdr25.6.0 |
|----------------|---------|-----------|-----------|
| Inclusive | 1038610 | 99.73 | 99.24 |
| Nhits: 36 > 60 | 433285 | 99.70 | 98.45 |
| Nhits: 36 < 60 | 360214 | 99.70 | 99.76 |
| Nhits: 36 = 60 | 245111 | 99.81 | 99.87 |

| Nhits:36 > 60 | 36 only | 60 only | Both |
|---------------|---------|---------|--------|
| reco'ed | 6475 | 1070 | 425518 |

| Nhits:36 < 60 | 36 only | 60 only | Both |
|---------------|---------|---------|-------|
| reco'ed | 717 | 919 | 35842 |



tdr25.3.6

| + Material scan between: x_0 = (0.00, 0.00, 0.50) [cm] and x_1 = (1900.00,1900.00, 0.50) [cm] : | | | | | | | | | |
|--|----------|----------|---------|-----------|-------------|-------------|------------|------------|----------|
| \ | Material | Atomic | | Radiation | Interaction | Path | Integrated | Integrated | |
| Num. \ | Name | Number/Z | Mass/A | Density | Length | Length | Thickness | Length | X0 |
| Layer \ | | [g/mole] | [g/cm3] | [cm] | [cm] | [cm] | [cm] | [cm] | Lambda |
| 1 | beam | 5 | 9.370 | 0.0000 | 2.59816e+15 | 3.31407e+15 | 0.999 | 1.00 | 0.000000 |
| 2 | Gold | 79 | 196.967 | 19.3200 | 0.3344 | 10.5751 | 0.001 | 1.00 | 0.001495 |
| 3 | G4_Be | 4 | 9.012 | 1.8480 | 35.2760 | 39.4488 | 0.020 | 1.02 | 0.002062 |
| 4 | G4_WATER | 7 | 14.322 | 1.0000 | 36.0830 | 78.0152 | 0.020 | 1.04 | 0.002616 |
| 5 | G4_Be | 4 | 9.012 | 1.8480 | 35.2760 | 39.4488 | 0.015 | 1.05 | 0.003042 |
| 6 | Air | 7 | 14.801 | 0.0012 | 30392.1242 | 71716.4399 | 0.051 | 1.11 | 0.003043 |
| 7 | G4_Si | 14 | 28.085 | 2.3300 | 9.3661 | 45.7531 | 0.005 | 1.11 | 0.003577 |
| 8 | CFRP_CMS | 6 | 12.371 | 1.4300 | 29.0993 | 56.1405 | 0.005 | 1.12 | 0.003736 |

tdr25.6.0

| + Material scan between: x_0 = (0.00, 0.00, 0.50) [cm] and x_1 = (1900.00,1900.00, 0.50) [cm] : | | | | | | | | | |
|--|----------|----------|---------|-----------|-------------|-------------|------------|------------|----------|
| \ | Material | Atomic | | Radiation | Interaction | Path | Integrated | Integrated | |
| Num. \ | Name | Number/Z | Mass/A | Density | Length | Length | Thickness | Length | X0 |
| Layer \ | | [g/mole] | [g/cm3] | [cm] | [cm] | [cm] | [cm] | [cm] | Lambda |
| 1 | beam | 5 | 9.370 | 0.0000 | 2.59816e+15 | 3.31407e+15 | 0.999 | 1.00 | 0.000000 |
| 2 | Gold | 79 | 196.967 | 19.3200 | 0.3344 | 10.5751 | 0.001 | 1.00 | 0.002990 |
| 3 | G4_Be | 4 | 9.012 | 1.8480 | 35.2760 | 39.4488 | 0.020 | 1.02 | 0.003557 |
| 4 | G4_WATER | 7 | 14.322 | 1.0000 | 36.0830 | 78.0152 | 0.020 | 1.04 | 0.004111 |
| 5 | G4_Be | 4 | 9.012 | 1.8480 | 35.2760 | 39.4488 | 0.015 | 1.06 | 0.004537 |
| 6 | Air | 7 | 14.801 | 0.0012 | 30392.1242 | 71716.4399 | 0.051 | 1.11 | 0.004538 |
| 7 | G4_Si | 14 | 28.085 | 2.3300 | 9.3661 | 45.7531 | 0.004 | 1.11 | 0.004965 |
| 8 | CFRP_M40 | 6 | 12.031 | 1.7700 | 24.0879 | 45.3140 | 0.006 | 1.12 | 0.005208 |

- DD4hep's built-in material scan tool
- Along a straight line (0,0,0.5) to (1900, 1900, 0.5) [cm]
- Beam pipe: 0.30% Xo(3.6) -> 0.45% Xo(6.0)
- The total tracker material including air: 11.6% Xo(3.6) -> 10.8% Xo (6.0)
- Even if the total material is the same, its distribution affects performance as well. For a hard layer, the closer it is to the IP, the greater the damage.