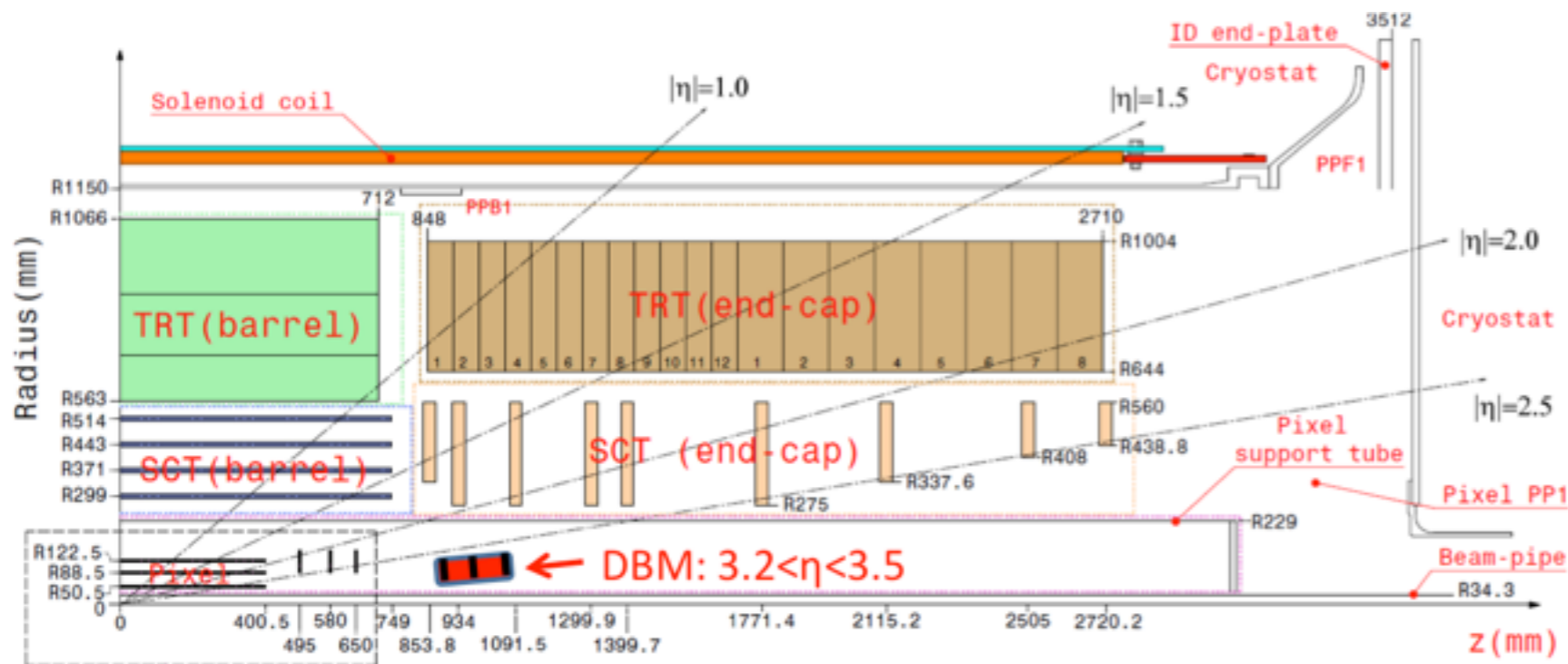


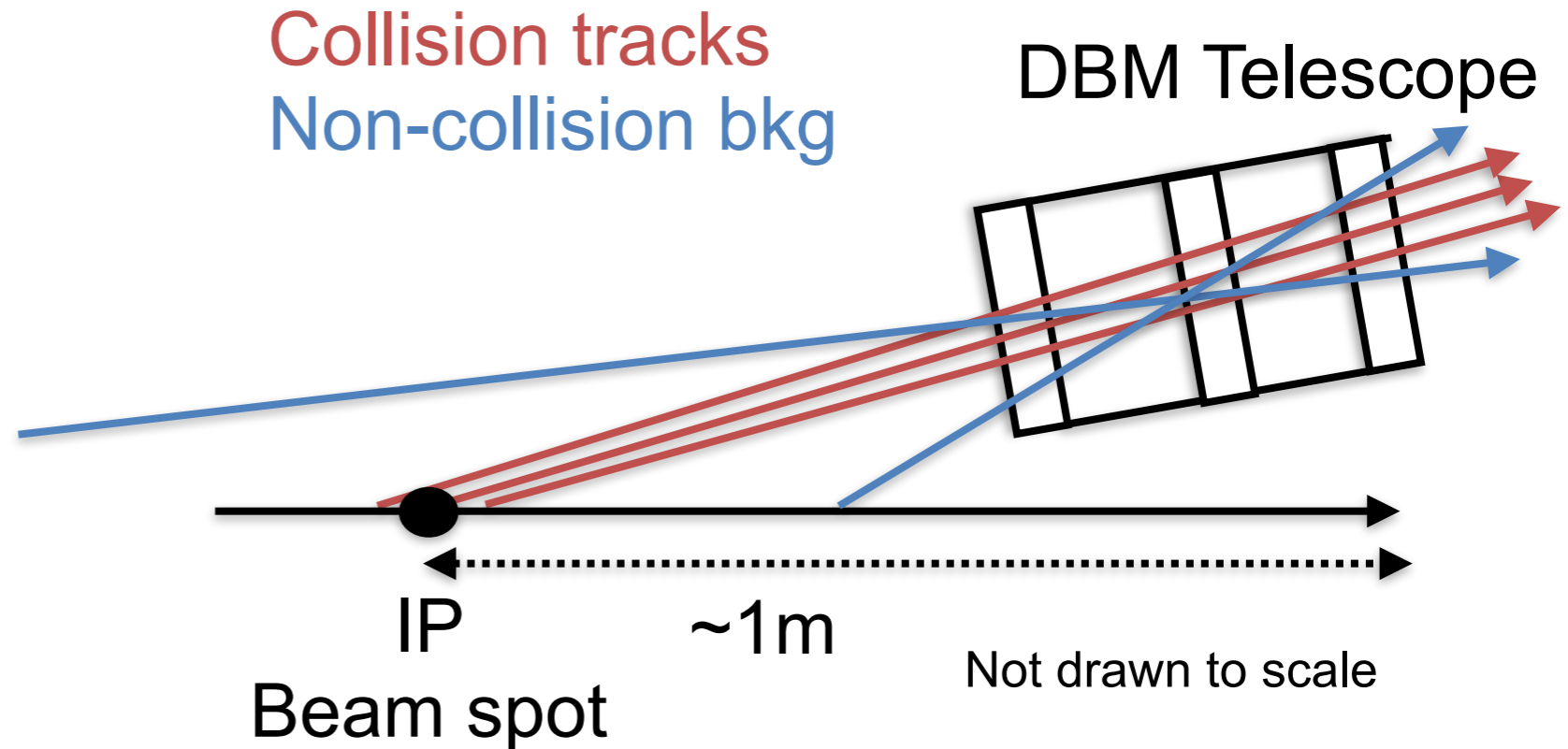
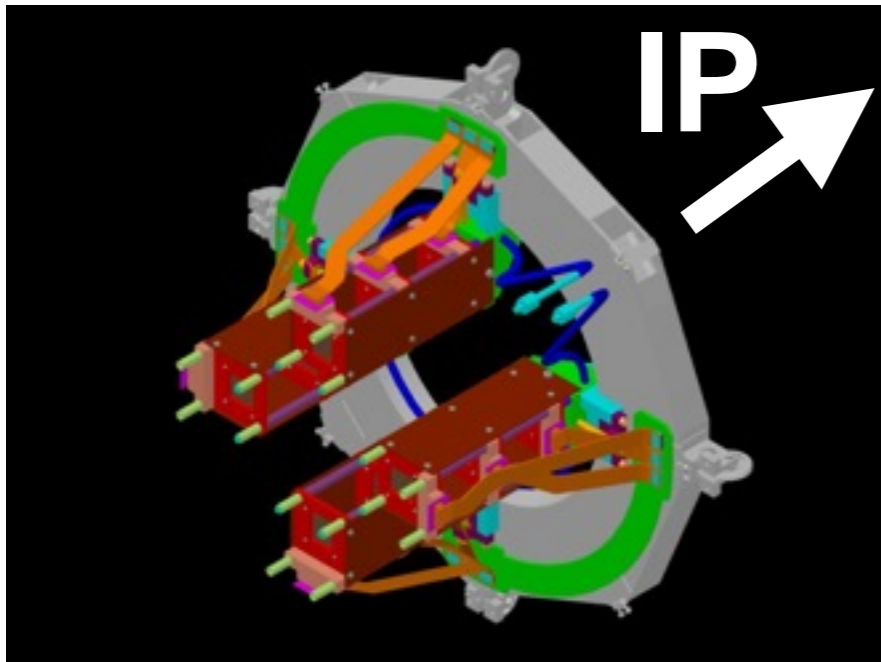
The ATLAS Diamond Beam Monitor:

Luminosity Detector on ATLAS



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Diamond Beam Monitor (DBM) has 4 tracking telescopes on either side of the pp collisions at $\eta \sim 3.2$ with 3 diamond and 1 silicon telescopes. Each telescope consists of 3 layers of diamond/silicon sensors with FE-14 readout chips. Each pair of telescopes is connected through a hitbus chip to allow for specialized triggering and readout. The DBM FE-14 data is readout as the “15th”-stave of the IBL, and a data stream using the hitbus data is used for luminosity estimates.



- z resolution (along beamline) of ~ 0.6 cm for tracks allows for the distinction of the pp-collision tracks from non-collision beam backgrounds and beam halo
- Track reconstruction on the DBM hitbus chip allows for fast triggering at 300 kHz with “OR” or “AND” of the 3 sensor layers
 - Dedicated triggering on collision and non collision
- Unbiased and informed sampling to obtain good statistics on all proton bunches including lower luminosity bunches
- Pattern recognition tested with DBM+IBL noise hits during commissioning
- Future data taking with collisions will validate the DBM standalone tracking