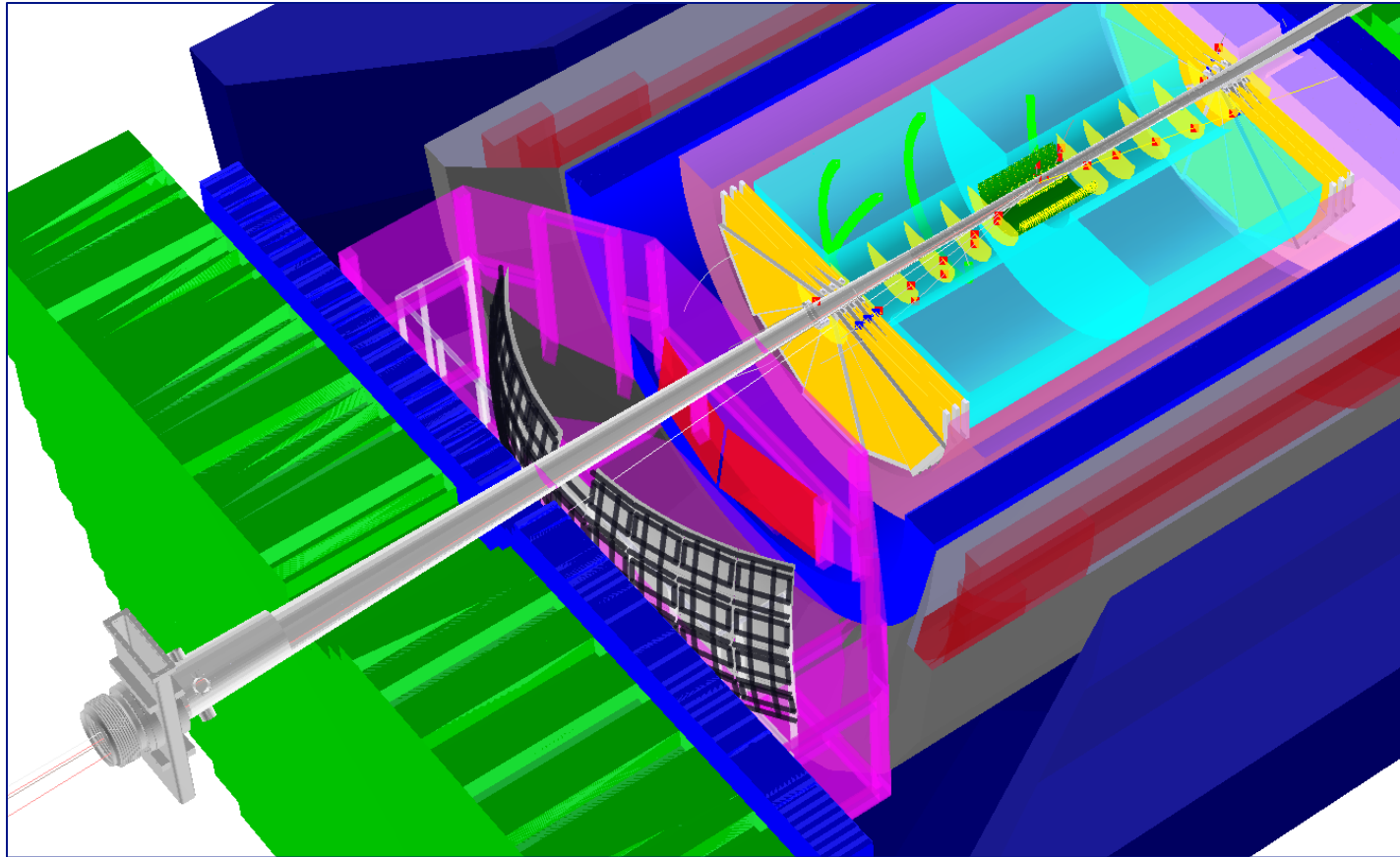


(Some of the) crossing angle effects

- Loss of azimuthal symmetry of the main detector
- Loss of acceptance of the main detector (and e.g. increase of the calorimetry and PID fiducial volume cut)
- Tracker resolution worsening
- “Target point” spot horizontal broadening \rightarrow P_t resolution becomes worse for both Roman Pots and the large acceptance dipole in the forward direction
- Acceptance cut in the forward direction

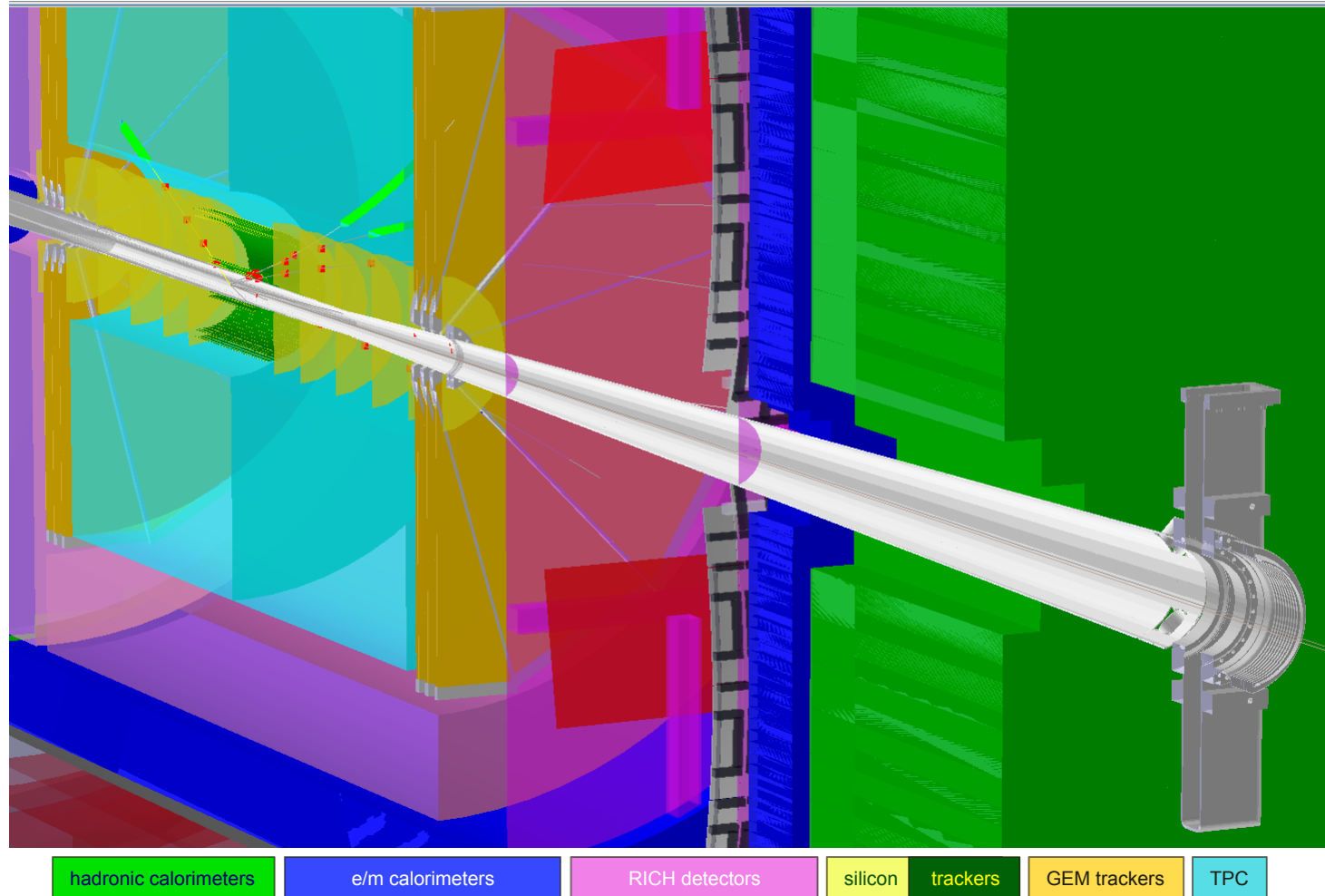
eRHIC IR illustration#1a



hadronic calorimeters e/m calorimeters RICH detectors silicon trackers GEM trackers TPC

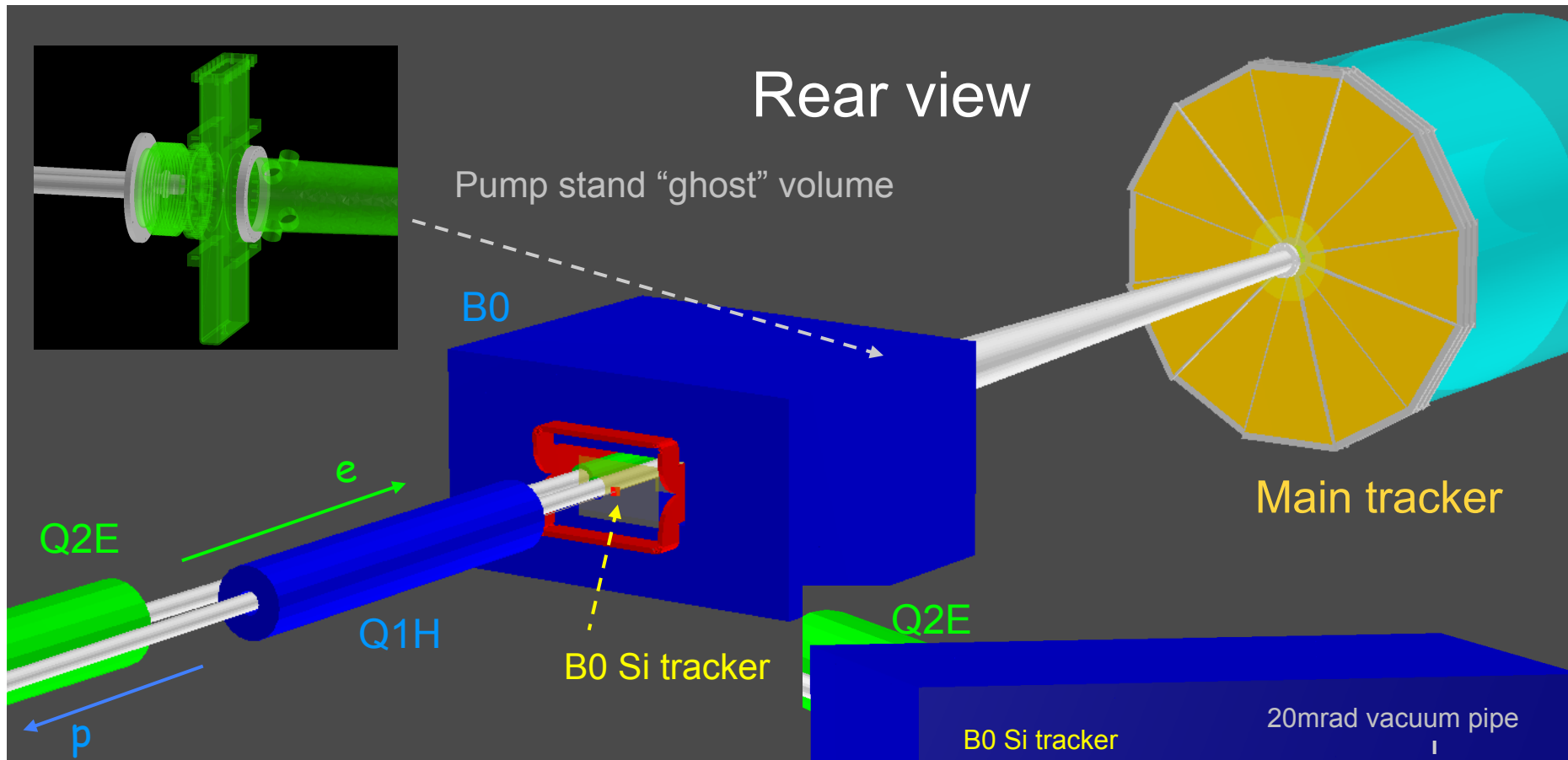
-> compare: $\eta=4$ is $\sim 2^\circ$, 50 mrad is $\sim 3^\circ$, $\eta=3.5$ is $\sim 60 \text{ mrad}$

eRHIC IR illustration#1b

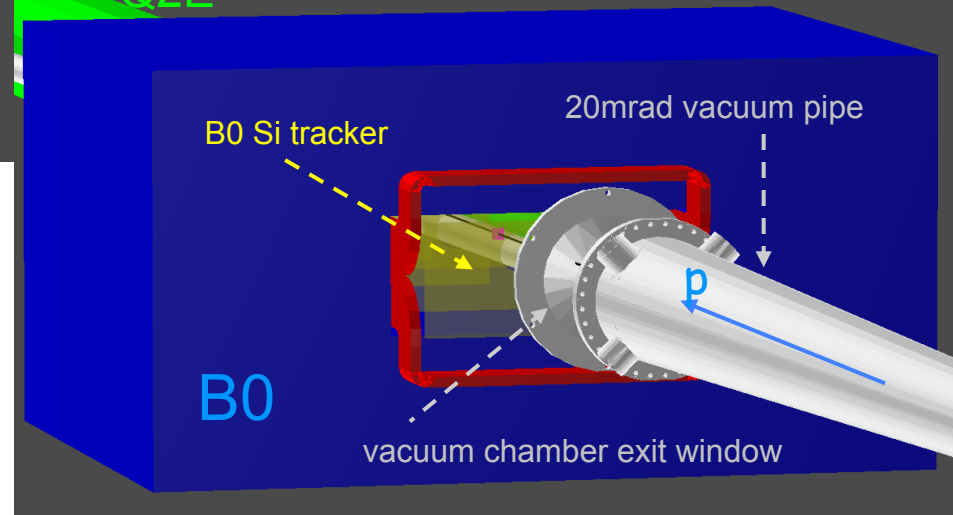


-> compare: "20mrad" conical pipe around H-going direction;
HCal tower size (green) is $10 \times 10 \text{ cm}^2$; pump stand is around +5m from the IP

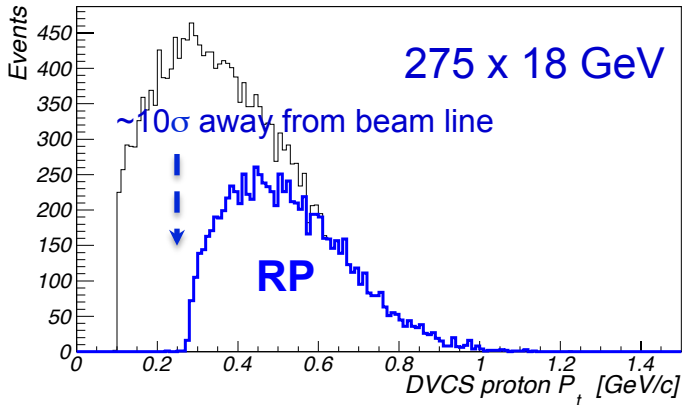
eRHIC IR illustration#2a



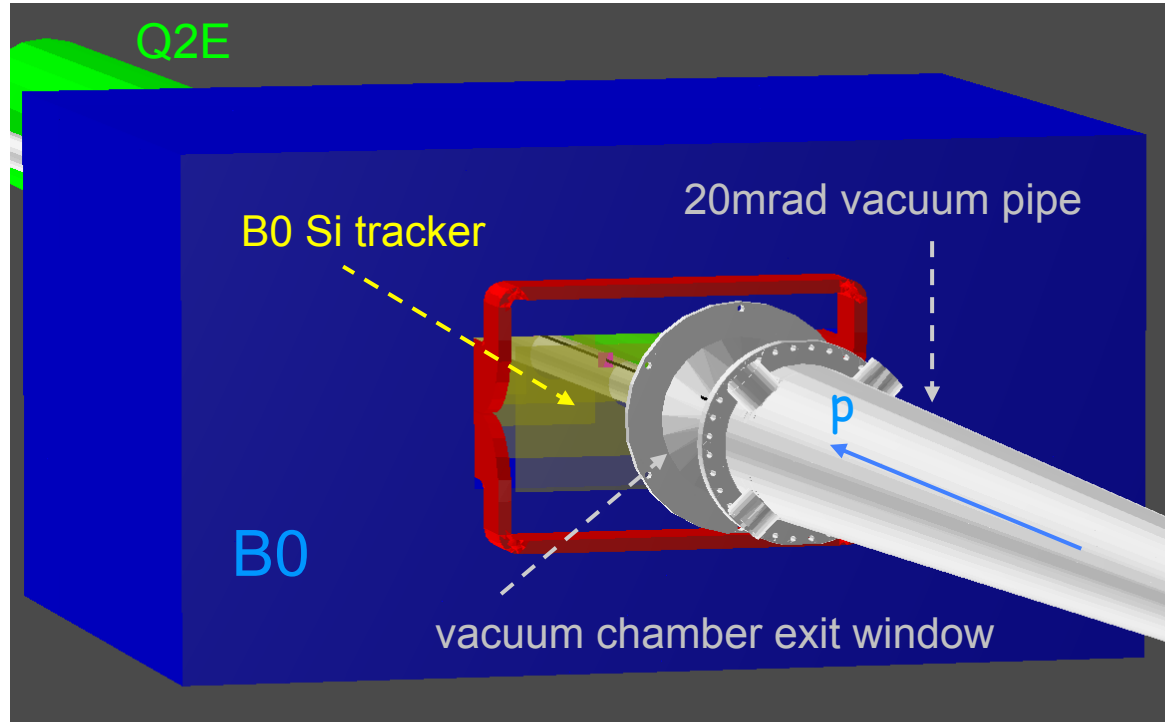
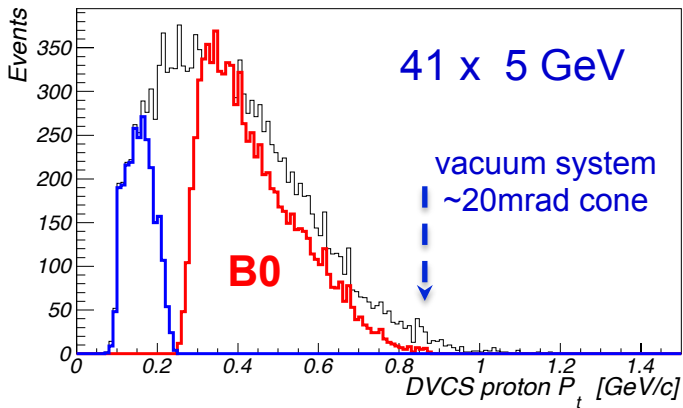
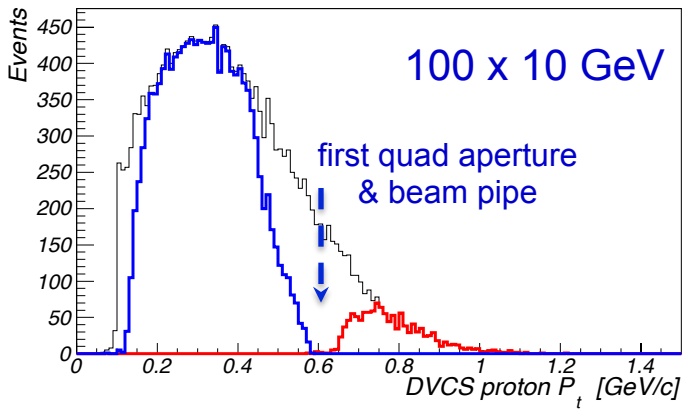
Front view →



eRHIC IR illustration#2b



→ Reasonably complete GEANT simulation of DVCS events



-> see acceptance cut in the 41x5 GeV configuration