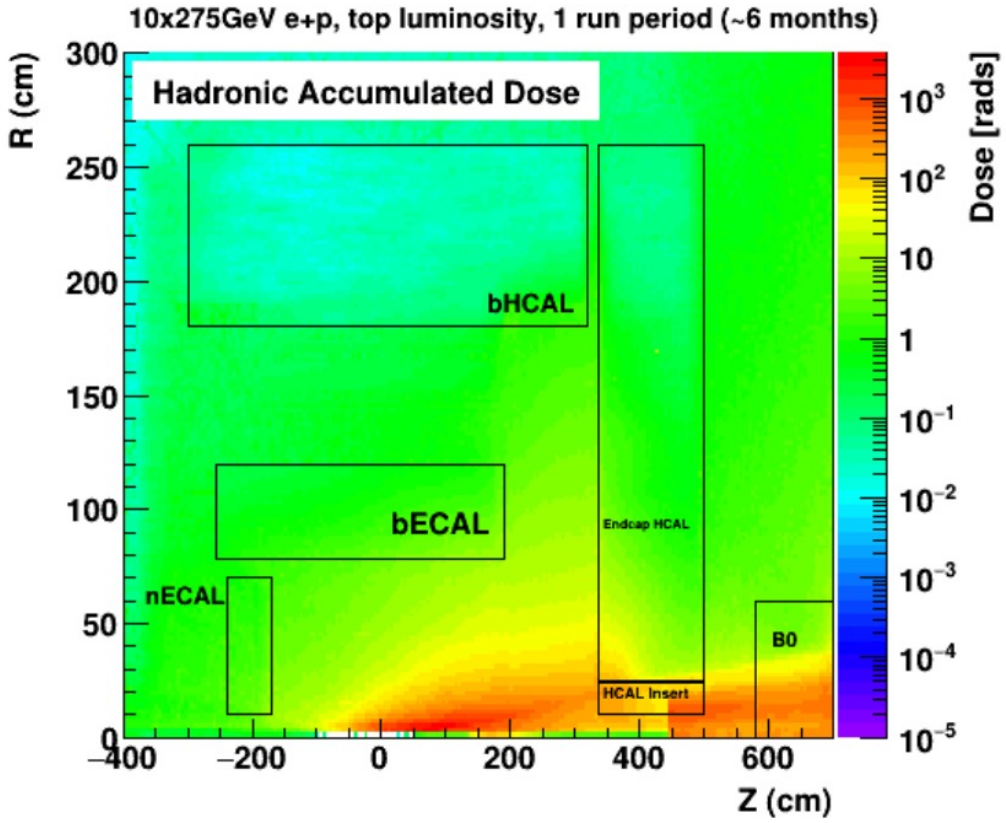
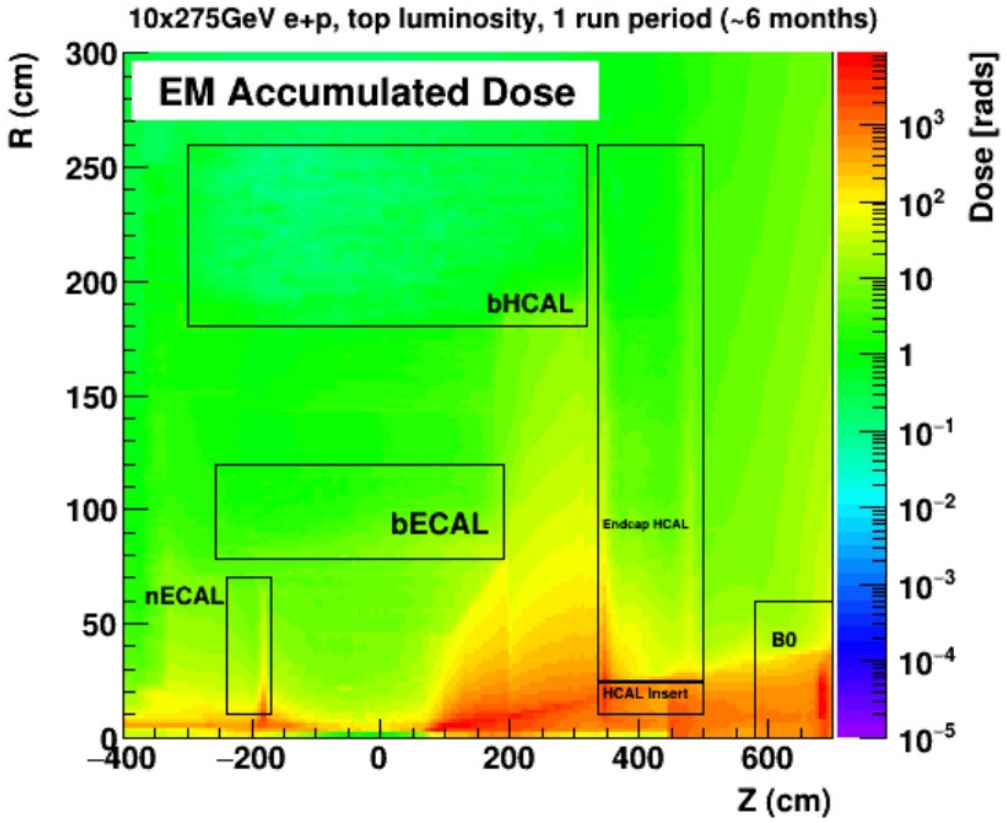
Radiation Impact on SiPMs, overview

Stefan Bathe

Baruch/CUNY

Barrel HCal Radiation exposure





- Orders of magnitude lower dosage than fHCal
- Anticipate testing for other subsystems will be sufficient

Quoting from current pre-TDR draft

- Yellow Report: at the calorimeters, the radiation level will be <= 3 krad/year EM and 10^{11} n/cm^2 hadronic at top luminosity
- At BHCal, the radiation level will be only 10 rad EM and 0.1 rad hadronic, orders of magnitude lower than, e.g., at the fHCal.
- The on-detector electronics (SiPMs, H2GCROC3) are radiation tolerant.
- The neutron fluence will be low enough that it is not an issue for SiPMs.
- The neutron fluence is lower than in sPHENIX, where the dark current increase is consistent with expectations.