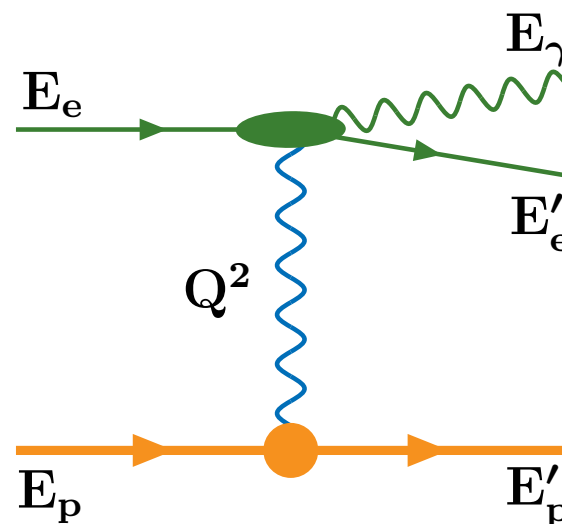
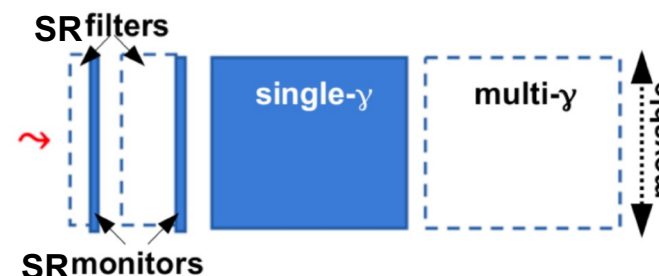


H-R Calorimeters: Monte Carlo status & plans

Krzysztof PIOTRZKOWSKI



Motivation & priorities



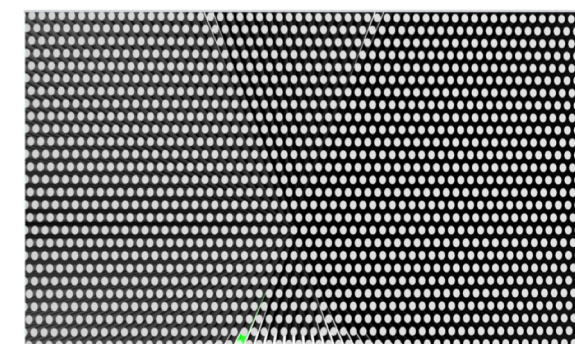
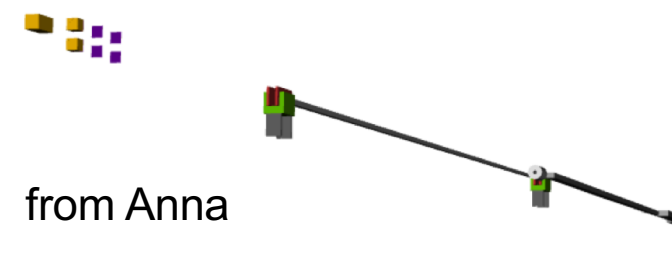
Before making a good progress in technology choices and design of High Rate Calorimeters we need to well understand “environmental conditions” for the direct photon and low- Q^2 electron measurements: extreme bremsstrahlung ($eAu!$) event rates resulting in huge irradiations + need of direct and secondary SR attenuation/masking

Our priorities are now:

1. using the most up-to-date beamline geometry in DD4hep/G4 as well as the EIC beam parameters, simulate all relevant **energy depositions** due to bremsstrahlung and SR (1st for direct BS photons)
2. simulate the bremsstrahlung event pileup and the resulting **channel occupancies**
3. get first estimates of the direct **SR background** “signal noise”/energy deposits in HRC

Status & plans

- Anna is preparing the generation of BS event pileup
- Anna and Yasir are preparing two types of detector “mock-ups” with 3D grids for the BS energy depositions in direct photon measurements:
 1. Homogenous **PbWO₄** calorimeter
 2. Sci or fused silica **fiber/tungsten spaghetti calorimeter**
- 3D distributions of bremsstrahlung energy depositions at the nominal luminosity are being calculated



1mm fiber (3mm pitch) spaghetti calorimeter from Yasir

Next steps

- Presentations by Anna and Yasir on May 8 (next week is a holiday) on the BS irradiation levels
- First conclusions regarding the appropriate technologies
- News regarding the SR?

Questions/remarks/suggestions?