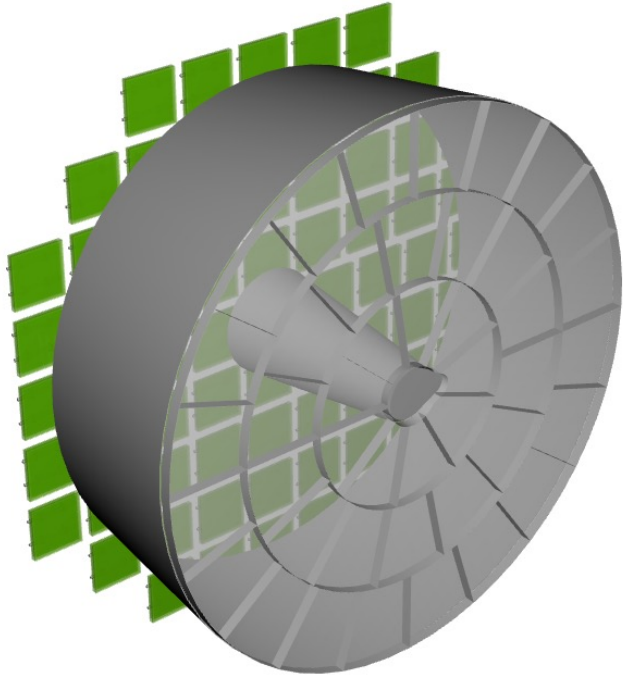


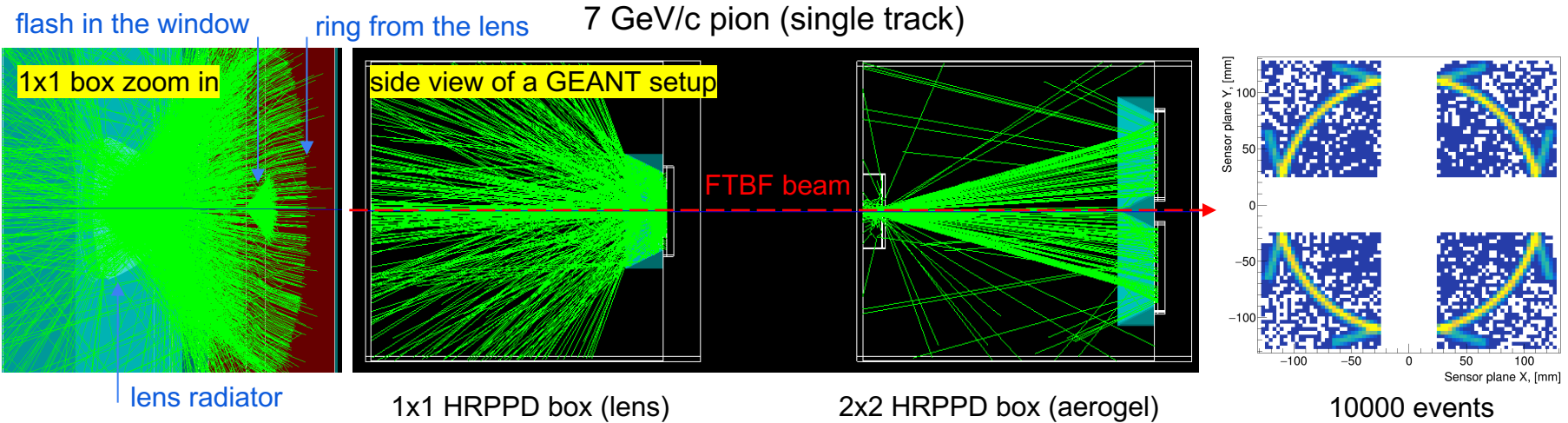
Current status



- The essential geometry is ported to dd4hep by Bill
 - HRPPD sensors including dead material
 - Aerogel tiles, separators, etc
 - Conical mirrors
 - Acrylic filter
 - Beam pipe cutout for all volumes
- Optics description porting has not started yet, ...
- ... as well as the IRT 2.0 integration
 - As of the January meeting at Argonne, both are not high on the priority list

Next steps

- May 2024 pFRICH beam test at Fermilab is looming
 - First article vessel & mirrors will not be ready
 - Fallback geometry: a simplified set of dark boxes housing five HRPPDs (1 + 2x2)
 - Since geometry porting to dd4hep was delayed anyway, decided to give using EICrecon software for beam test purposes up, and stick to the existing standalone code
- Focus on unifying a “final” ePIC pFRICH and a beam test geometry in one software suite



More distant future

- IRT 2.0 debugging will mostly proceed in a standalone code for the next 3-4 months
- This standalone code will be used to produce detector performance plots for pre-TDR
- Delphes-like tables (smearing matrices) can be produced a la ATHENA
 - These codes exist for dRICH, pRICH, hpDIRC and part of TOF (funny enough, all this stuff still in [IRT repository](#)) ...
 - ... though effort to resurrect them and adjust to ePIC detector needs may be non-negligible
- Porting to EICrecon environment will continue as a low priority task
- Timelines will strongly depend on how quickly BNL NPPS can hire a person to work on this

```
void delphes_dirc( void )
{
    //printf("%f\n", (1.0 - erf(1.75/(sqrt(2.)*1.0)))/2);

    auto dirc = new DelphesConfigDIRC("barrelDIRC");
    dirc->UsePtMode();

    // Define particle mass hypotheses in ascending mass order; yes, there is no
    // reason to overcomplicate things;
#ifdef _E_PI_SEPARATION_MODE
    dirc->AddMassHypothesis(-11);
#endif
    dirc->AddMassHypothesis("pi+");
#ifdef _E_PI_SEPARATION_MODE
    dirc->AddMassHypothesis("K+");
    dirc->AddMassHypothesis("proton");
#endif

    // "d(theta) ~ a/p + b" parameterization as taken from Wenqing's 11/23/21 slides,
    // roughly averaged over eta; 12/05/2022: still use the same, for the time being;
    dirc->SetTrackerAngularResolution(0.9, 0.1);

    // eta and momentum range and binning;
    dirc->SetEtaRange (-1.55, 1.79, 10);
    // Do not mind to use Pt rather than 1/Pt bins; [GeV/c];
#ifdef _E_PI_SEPARATION_MODE
    dirc->SetMomentumRange( 0.44, 3.00, 10);
    //dirc->SetMomentumRange( 1.20, 1.21, 1);
#else
    dirc->SetMomentumRange( 0.44,10.00, 10);
#endif

    // Installation radius in [mm]; constant magnetic field in [T];
    dirc->SetInstallationRadius (729.6);
    dirc->SetMagneticField ( 1.700);

    dirc->SetParameterizationMap("./ctr_map_p1_0.95.root");

    dirc->DoSigmaCalculations();
    // This is again some generic stuff;
    dirc->WriteTcl(false);
    {
        auto fout = new TFile("barrelDIRC.root", "RECREATE");
        dirc->Write();
        fout->Close();
    }
    exit(0);
} // delphes_dirc()
```