Testbeam simulation status

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Outline

Current status:

Testbeam package in the `basf2 svn`

- To manage software dependencies, a new optional `basf2` package has been created in the `basf2` software directory. Use `addpkg testbeam` to retrieve it.
- `testbeam/vxd` contains code for the combined testbeam.
- `testbeam/pxd` contains code for previous DEPFET (PXD) testbeams.
- During the following week, please contact me for the latest patch, currently the `svn` repository is locked due to release preparation and I cannot commit updates.

Code structure in `textbeam/vxd`

- `data` contains `*.xml` files with geometry definition and alignmnet parameters
- `dataobjects` contain definition of data types for EUDET telescopes
- `examples` contains sample steering scripts
- `geometry` contains the testbeam geometry creator (`GeoVXDTBCreator`)
- `modules` contains a simple smearing digitizer/clusterizer for the EUDET telescopes, and a simple analysis module.
- `scripts` contains sample ROOT macros to plot some simulation data
- `simulation` contains a SensitiveDetector class for the EUTELs.

On the to-do list

General

- Consolidate the code and improve documentation
- Finally show some simulation results!
- Set up GeoCache to work with EUTEL hits

Event display

- Currently only off-line (via a VRML viewer)
- On-line event display in preparation
  - The TEve display currently doesn't see the inhomogeneous magnetic field of the PCMag.

Other tasks:

- Data simulators for the PXD and SVD part
- Other pieces of testbeam software still missing...

The testbeam

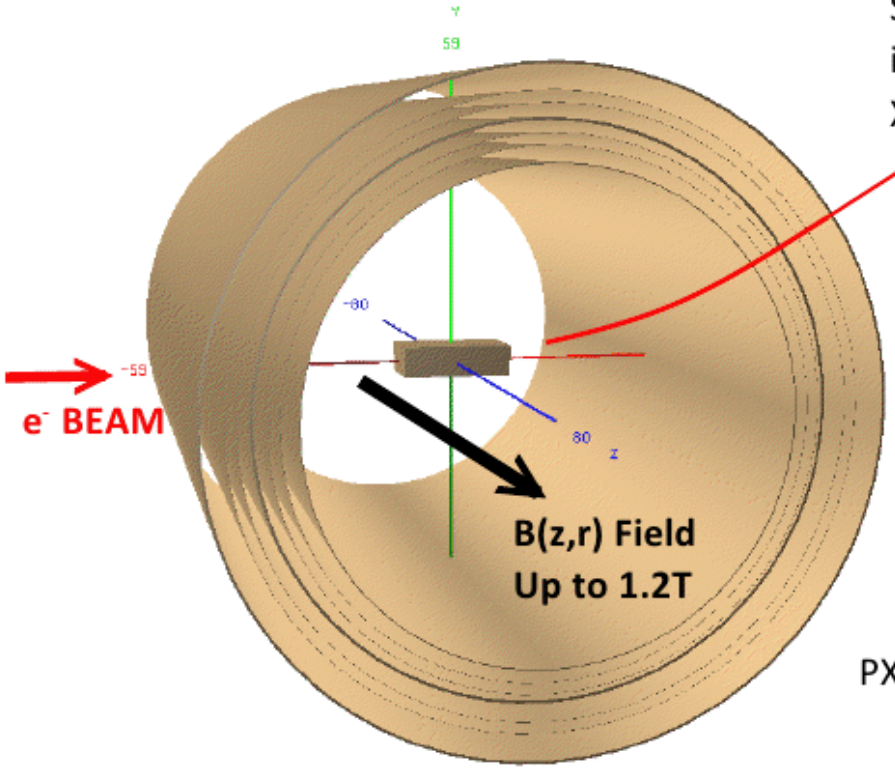
Current Status: Geometry

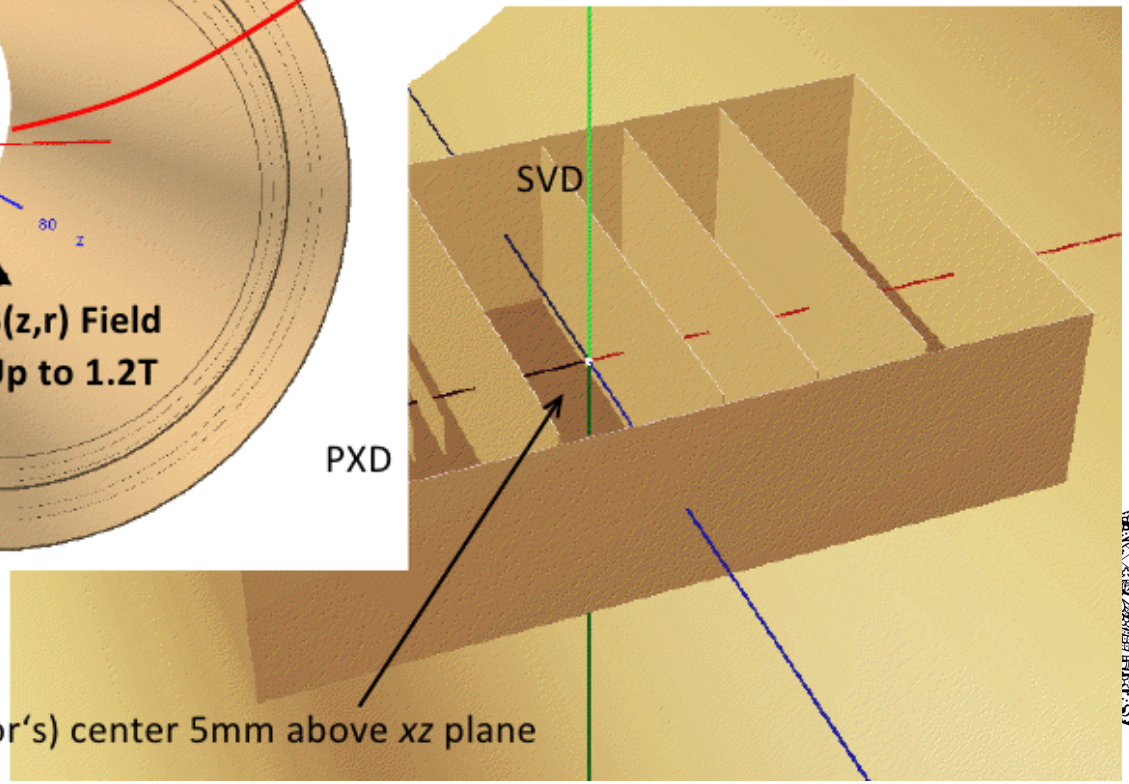
- First geometry is ready. Materials often unknown

Sensors' distances, sizes and parameters as in Belle II.

$X_{TB} = R_{Belle2}$ - 70mm

e.g. 1st PXD is at x = (14 -70)mm = -56mm





Box (and sensor's) center 5mm above *xz* plane

On the to-do list: Alignment

VXD alignment

- Implementation of (mis-) alignment in the VXD will be based on the VXD::GeoCache and the RecoHits.
- A serious re-construction of VXD::GeoCache is planned to implement handling of alignment parameters.
  - Based on the idea of Tobias Schluetter, in progress.
  - The GeoCache will handle the construction of the RecoHit SensorPlanes according to the current set of alignment parameters
  - For detector sag, we will construct tangential planes.
- Will be first used and tested for the testbeam.

Thanks

Thank you for attention.