

ded
Summer 2010

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August 18, 2010

XY Side View

No Monte Carlo or reconstructed particles

YZ Side View

No Monte Carlo or reconstructed particles

Basic Advanced

XZ Side View

No Monte Carlo or reconstructed particles

Basic Advanced

Display Options

FCAL View

No Monte Carlo or reconstructed particles

Basic Advanced

BCAL View

No Monte Carlo or reconstructed particles

Basic Advanced

Display Options

- Single Event Accumulated
- Annotations Outlines Only
- Magnetic Field

Hits

- BCAL Hits

Trajectories

- Photons MC Trajectories
- Track Time Based Track Wire Based
- MCThrown Charged Track

Field Magnitude (T)

0.0 0.6 1.2 1.8 2.4

Relative Accumulation

Global Control Panel

Display Options

- Use Global Ctrl
- Magnetic Field

Trajectories

- Photons
- Track Time Based
- MCThrown

Truth Hits

- TOF Truth
- CDC Truth
- FCAL Truth

Hits

- FCAL Hits
- BCAL Hits

Photon Projections

- Thrown on FCAL Reconst. on FCAL
- Thrown on BCAL Reconst. on BCAL

When Drawing MC Trajectory, Draw:

- γ tracks e^- tracks
- n tracks π^+ tracks
- π^- tracks all other tracks

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NEWPORT

Getting ded

- Stable
 - Pre-built
 - Available on the halld disk at
`/group/halld/Software/builds/ded`
- Development
 - Source
 - SVN
 - Available through the CLAS software repository at
<https://clas12svn.jlab.org/repos/trunk/clas12>

Building & Running

- Stable
 - Unix/Linux/OS X – run ded.sh
 - Windows – double click ded.bat
- Development
 - Built in eclipse
 - Must get both ded and bCNU they are in the clas repository
 - Can be run in eclipse or exported from eclipse to a jar
 - Ant.xml

Opening event files

- Must be in evio
- These can be generated using the danaevio plugin which can be found at `/group/halld/Software/builds/sim-recon/sim-recon-2010-05-17/src/programs/Utilities/plugins`
- Documentation on how to use the plugin can be found on the wiki at [HOWTO: ded: Install & Run](#)
 - E.g. `hd_ana -PPLUGINS=danaevio
hdgeant_smeared.hddm`

Geometry

```
GeoConstants.java
package cnuphys.ded.geometry;

* Hard coded geometry constants. To be used when geometry service, database, or
public class GeoConstants {

    //public static final double BCAL_Rmin = 65.0;
    public static final double BCAL_Rmin = 64.3;
    //public static final double BCAL_Rmax = 87.46;
    public static final double BCAL_Rmax = 90.5;
    public static final double BCAL_Zlen = 390.0;
    public static final double BCAL_Zmin = 212.0 - BCAL_Zlen / 2.0;
    public static final double FCAL_Zlen = 45.0;
    public static final double FCAL_Zmin = 622.8;
    public static final double FCAL_Rmin = 6.0;
    public static final double FCAL_Rmax = 212.0 / 2.0;
    public static final double CDC_Rmin = 9.0;
    public static final double CDC_Rmax = 59.0;
    public static final double CDC_Zlen = 150.0;
    public static final double CDC_Zmin = 17.0;
    public static final double TOF_Rmax = 125.0;
    public static final double TOF_Rmin = 6.0;
    public static final double TOF_Zlen = 2.54;
    public static final double TOF_Zmin = 618.8;
    public static final double FDC_Rmin = 3.5;
    public static final double FDC_Rmax = 48.5;
    public static final double TARGET_Zmid = 65.0;
    public static final double TARGET_Zlen = 30.0;
    public static final double TARGET_Rmax = 4.0; // pulled this out of the air

    // fdc zlimits--six "layers?" per package, four packages
    private static final double p1_zmin[] = { 176.1586, 178.1586, 180.1586, ...
    private static final double p1_zmax[] = { 177.1614, 179.1614, 181.1614, ...

    private static final double p2_zmin[] = { 233.7186, 235.7186, 237.7186, ...
    private static final double p2_zmax[] = { 234.7214, 236.7214, 238.7214, ...
```

Structure

```
trunk/src
├── cnuphys.ded.component.controlpanel
├── cnuphys.ded.component.displayarray
├── cnuphys.ded.dedview
├── cnuphys.ded.dedview.bcalview
├── cnuphys.ded.dedview.controlpanelview
├── cnuphys.ded.dedview.fcalview
├── cnuphys.ded.dedview.hud
├── cnuphys.ded.dedview.mc
├── cnuphys.ded.dedview.photon
├── cnuphys.ded.dedview.sideview
├── cnuphys.ded.dedview.threedview
├── cnuphys.ded.dedview.tofview
├── cnuphys.ded.dedview.track
├── cnuphys.ded.dedview.truth
├── cnuphys.ded.event
├── cnuphys.ded.frame
├── cnuphys.ded.geometry
├── cnuphys.ded.item
├── cnuphys.ded.magfield
├── cnuphys.ded.particleinfoview
└── cnuphys.ded.util
```

```
cnuphys.ded.dedview.fcalview
├── FCALHitDrawer.java 3554 8/16/10
└── FCALView.java 3570 8/16/10
```

- XHitDrawer draws the specific hits
- XView draws the view that the item and hit drawer draw upon

Structure (cont'd)

```
▼ [icon] cnuphys.ded.item
  ▷ [icon] BCalItem.java 3561 8/12
  ▷ [icon] BCalViewItem.java 3570
  ▷ [icon] CDCItem.java 3561 8/12
  ▷ [icon] CylinderItem.java 3561
  ▷ [icon] FCalItem.java 3561 8/12
  ▷ [icon] FCalViewItem.java 3570
  ▷ [icon] FDCChamberItem.java 3561
  ▷ [icon] FDCPackageItem.java 3561
  ▷ [icon] FDCShellItem.java 3561
  ▷ [icon] FieldItem.java 3561 8/12
  ▷ [icon] SolenoidItem.java 3561
  ▷ [icon] TOFItem.java 3561 8/12
```

- XItem draws the detector for side view
- XItemView draws the detector for the dedicated view

Features Summary

- Current:
 - Color coded
 - Charged/Uncharged
 - HUD (Heads Up Display)
 - Particle info views
 - Most of hdview2 features
 - Socket communications
- Future:
 - CLARA for on demand events
 - Dynamic bank loading
 - 3D views
 - Magnetic field
 - Accumulated hits
 - Command line args
 - ded.app & ded.exe