

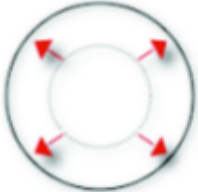


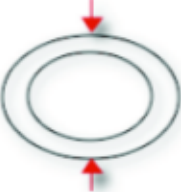

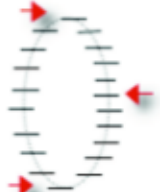

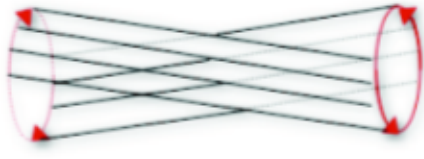
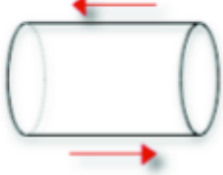
HDGeant/hitCDC.c

```
// Simulation of the ASIC response to a pulse due to a cluster
double asic_response(double t){
    double func=0;
    double par[11]={-0.01986,0.01802,-0.001097,10.3,11.72,-0.03701,35.84,
                    15.93,0.006141,80.95,24.77};
    if (t<par[3]){
        func=par[0]*t+par[1]*t*t+par[2]*t*t*t;
    }
    else{
        func+=(par[0]*par[3]+par[1]*par[3]*par[3]+par[2]*par[3]*par[3]*par[3])
            *exp(-(t-par[3])*(t-par[3])/(par[4]*par[4]));
        func+=par[5]*exp(-(t-par[6])*(t-par[6])/(par[7]*par[7]));
        func+=par[8]*exp(-(t-par[9])*(t-par[9])/(par[10]*par[10]));
    }
    return func;
}

// Simulation of signal on a wire
double cdc_wire_signal(double t,s_CdcStrawTruthHits_t* chits){
    double t0=1.0; // ns; rough order of magnitude
    int m;
    double asic_gain=0.5; // mV/fC
    double func=0;
    for (m=0;m<chits->mult;m++){
        if (t>chits->in[m].t){
            double my_time=t-chits->in[m].t;
            func+=asic_gain*chits->in[m].q*asic_response(my_time);
        }
    }
    return func;
}
```

CDC questions

- Do we need $\cos \theta$ dependent calibrations?
- Do we need wire gain calibrations? Is there a plan for dE/dx measurement calibrations?
- Alignment questions:
 - Does each wire need a sag correction?
 - What are the plans for measuring weak modes?
- What are the plans for calibration procedures?
 - Do we have a plan for fine tuning/measuring the magnetic field with data?

	ΔR	$\Delta\phi$	ΔZ
R	<p>Radial Expansion (distance scale)</p> 	<p>Curl (Charge asymmetry)</p> 	<p>Telescope (CM boost)</p> 
ϕ	<p>Elliptical (vertex mass)</p> 	<p>Clamshell (vertex displacement)</p> 	<p>Skew (Z momentum)</p> 
Z	<p>Bowing (total momentum)</p> 	<p>Twist (vertexing)</p> 	<p>Z expansion (distance scale)</p> 

(from C. Escobar, Vertex 2008)