

**Do e^\pm from ν_e and $\bar{\nu}_e$ hit the
endcaps or the upstream
calorimeter?**

*23 Aug 2021
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- 2560 events from `nd_hall_only_ECal12sides_421_SPY_v3_wMuID` geometry, using only ν_e and $\bar{\nu}_e$ from beam, default GENIE model, no overlay from spill, 10 μ s spill. Look for primary e^\pm from fiducial of 1 metric ton Ar in center of detector
- Decide which section of the calorimeter the primary e^\pm using verbal description from Vivek, e.g. -100 cm from MPD center is downstream.
- Vivek obtains the same results with primary μ^\pm and with primary e^\pm

Nah!

2560	total events,	1098	total events in fiducial
709	CC nu_e,	107	CC nubar_e in fiducial
231	NC nu_e,	50	NC nubar_e in fiducial

Following MCParticle trajectories:

Upstream barrel:	13
Downstream barrel:	721
Endcaps:	62
not in CAL:	20

Downstream barrel fraction (of CC):	883.58 ± 11.23 m ^o
Upstream fraction:	15.93 ± 4.38 m ^o
Endcap fraction:	75.98 ± 9.28 m ^o
Not-in-CAL fraction:	24.51 ± 5.41 m ^o

pseudoVivek code

```
float rho = Qadd(z,y);  
if (rho < rhoEnd && x >= +xEnd) return posEnd;  
if (rho < rhoEnd && x <= -xEnd) return negEnd;  
// Subtract 0.5cm to handle roundoff problems  
if (rho >= rhoBar -0.5 && z < updown)  
    return upBarrel;  
if (rho >= rhoBar -0.5 && z >= updown)  
    return dnBarrel;
```