

---

Subject: Re: Question on R3BNeutronTracker2D  
Posted by [Dmytro Kresan](#) on Thu, 07 Jul 2016 15:00:38 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

Hi Christiaan,

How often does this happen, percentage of events?

Determining nNeut is just the first step in the reconstruction. nNeut is based on calorimetric and multiplicity properties of an event. Afterwards you need to find your candidates in the hit pattern. Imagine you did  $3n \rightarrow 4n$  misidentification, then most probably program will find only 3 best candidates, so  $n_{\text{size}} < n_{\text{Neut}}$ . And this can happen in 20 - 30% of events - depending on input and cuts.

How did you calculate the energy/clusters cuts for your simulation? You need to recalculate them for every different input, do not apply "standard" values.

In addition, beta cut is applied, to select neutrons with velocity close to beam. Due to finite resolution, this condition could also cut out good candidates.

You can investigate 2 things:

- 1) Determine your multi-neutron identification matrices, like was done for  $^{132}\text{Sn}$  input. In your case, you can define primary neutron by cutting on time and position of the MCTrack vertex - close to (0, 0,0,0). Then you will know your proper 2D cuts, efficiency and misidentification.
- 2) To study the reaction input - plot the velocity distribution of "primary" neutrons, and cut values on top of it. This will help to adjust the beta-cut for this physics case.

Best regards,  
Dima

---