

## MAUS - Bug #1640

### EMR bar size incorrect by factor 2?

10 March 2015 11:29 - Rogers, Chris

<b>Status:</b>	Closed	<b>Start date:</b>	10 March 2015
<b>Priority:</b>	Normal	<b>Due date:</b>	01 April 2015
<b>Assignee:</b>	Drielsma, François	<b>% Done:</b>	100%
<b>Category:</b>	EMR	<b>Estimated time:</b>	0.00 hour
<b>Target version:</b>	Future MAUS release		
<b>Workflow:</b>	New Issue		

**Description**

I ran a Monte Carlo data set using the EMR. I plotted `EMRHit.GetPosition().x()` against `EMRHit.GetChannelId().GetBar() % 59 + 1` and for all hits in the Monte Carlo. It looks like the position is in the range  $(-225, 225)$ , which I think is wrong by a factor 2? Or maybe I am doing something stupid?

I attach my monte carlo datacards, simulation script, geometry file and a sample root output file.

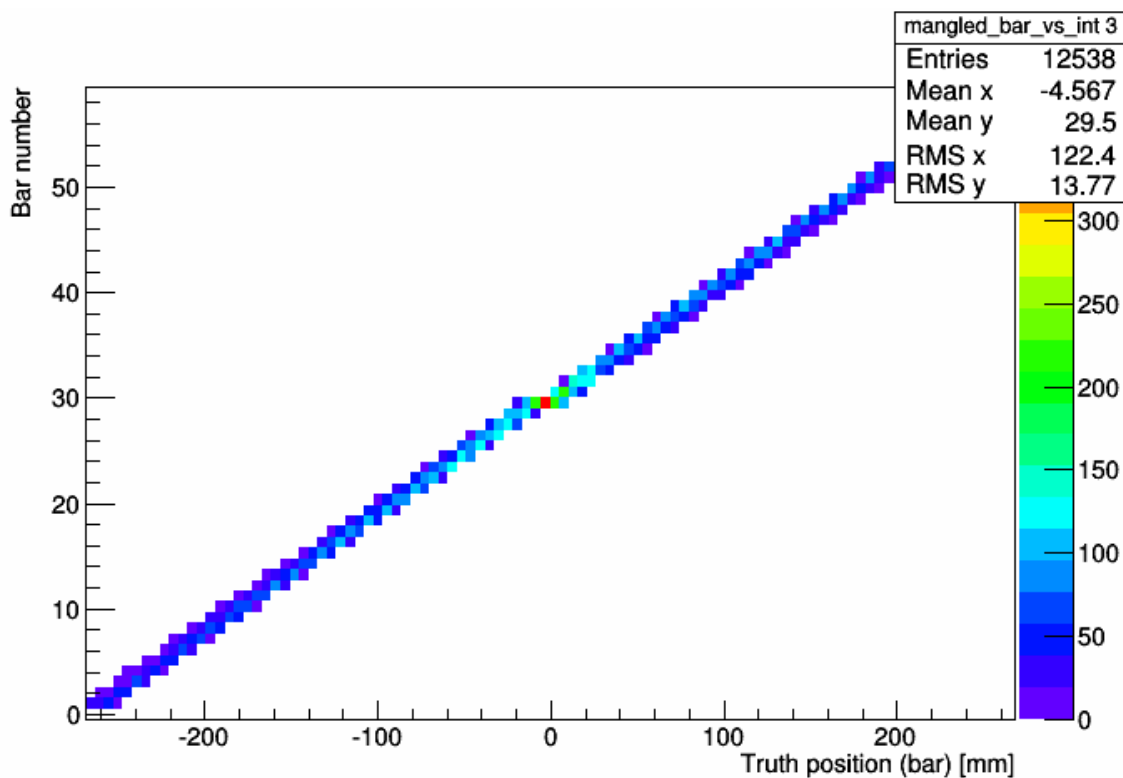
### History

#1 - 10 March 2015 11:30 - Rogers, Chris

- Category set to EMR

- Assignee set to Drielsma, François

Inline the plot for your convenience



#2 - 10 March 2015 11:33 - Rogers, Chris

Just to be complete, my command line was

```
./simulate_emr.py --configuration_file emr_and_polarised_decay_config.py \  
  --output_root_file_name data/maus_mc_output_production_threshold=0.1_physics_processes=standard_cards=0.ro  
ot \  
  --production_threshold 0.1 --physics_processes standard --default_keep_or_kill True
```

**#3 - 10 March 2015 11:39 - Drielsma, François**

Hello Chris,

It's a problem that I've unravelled very recently and it's probably not fixed in the trunk quite yet. The geometry of the EMR in MAUS is wrong. I don't know when it was made but the orientation of the planes is incorrect and so is the size of the bar. Everything is fixed in my branch but there is still a test failure under investigation before it can be merged to the trunk. The x position should range from more or less -500 to 500.

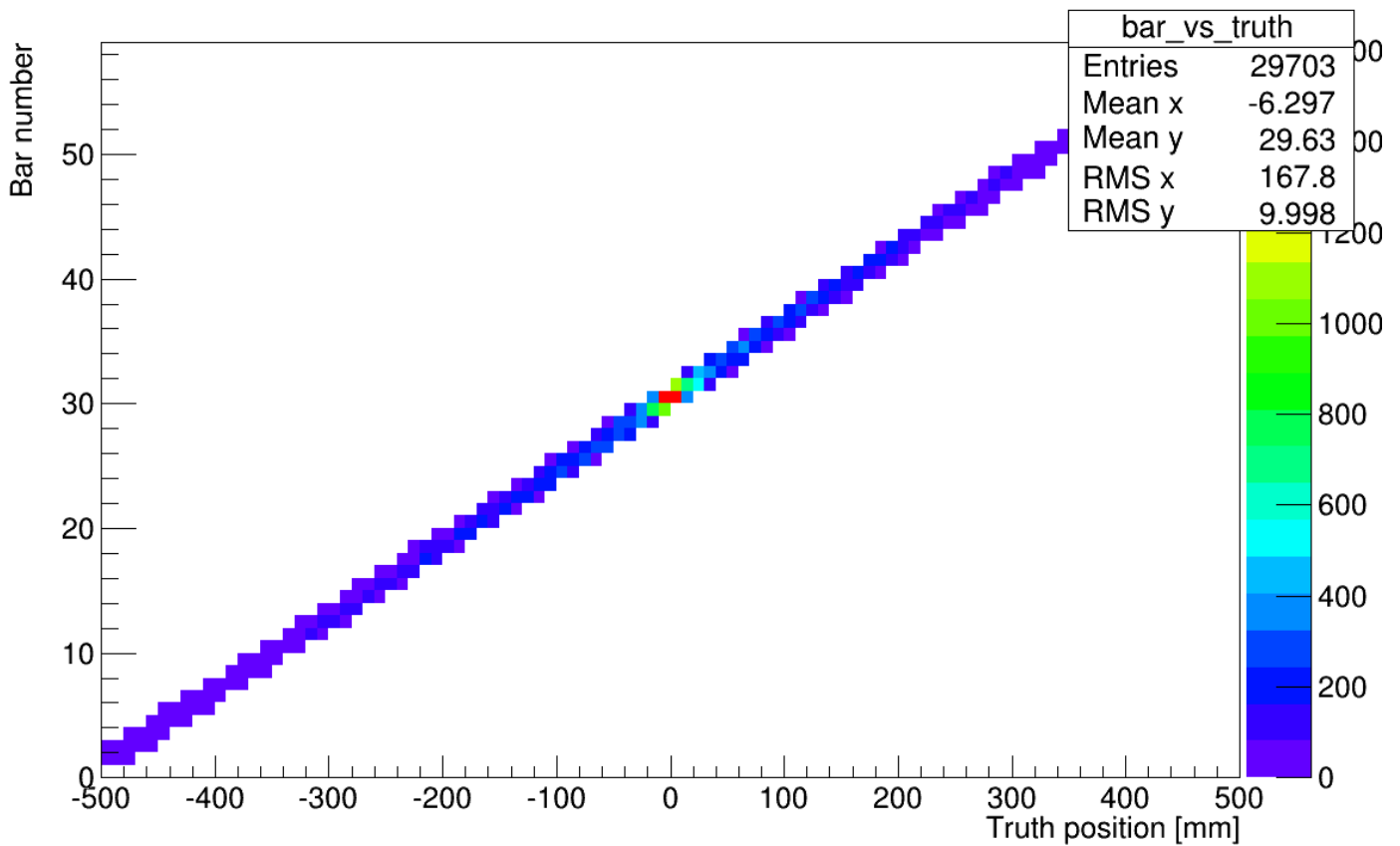
**#4 - 10 March 2015 11:42 - Rogers, Chris**

Okay, but myself and Sophie just wasted a month debugging your EMR code! A bug report would be nice on this sort of thing.

**#5 - 23 April 2015 15:26 - Drielsma, François**

- File *bar\_vs\_truth.png* added
- Due date set to 01 April 2015
- Target version set to Future MAUS release
- Workflow changed from New Issue to Closed

The problem has been solved and will be in the next MAUS release, please review at your convenience.



**#6 - 18 May 2015 17:42 - Dobbs, Adam**

- Status changed from Open to Closed
- % Done changed from 0 to 100
- Workflow changed from Closed to New Issue

Fixed since 0.9.4.

**Files**

truth_position_vs_bar_number.png	12.8 KB	10 March 2015	Rogers, Chris
emr_and_polarised_decay_config.py	2.23 KB	10 March 2015	Rogers, Chris
EMRGeometry.dat	629 Bytes	10 March 2015	Rogers, Chris

