

## uBooNE code - Bug #16038

### SpaceCharge service provider does not behave correctly when corrections are disabled

03/31/2017 01:05 PM - Gianluca Petrillo

<b>Status:</b>	Closed	<b>Start date:</b>	03/31/2017
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>	Gianluca Petrillo	<b>% Done:</b>	100%
<b>Category:</b>		<b>Estimated time:</b>	1.00 hour
<b>Target version:</b>			
<b>Description</b>			
<p>The behaviour of SpaceChargeMicroBooNE service provider is undefined when the corrections are not enabled.</p> <p>The type of correction is not initialised when the corrections are not requested. When GetPosOffset() is called, the provider always attempts to compute a correction, even when corrections are disabled. The way this attempt is performed depends on the type of correction. When the correction is disabled and the correction type is not defined, the action is also unpredictable.</p> <p>This bug escaped diagnosis because:</p> <ul style="list-style-type: none"><li>• LArG4, the only user to date, calls the correction only when the correction is enabled</li><li>• the failure of the unit test is still to be explained</li></ul> <p>The same is likely true for the electric field distortion.</p> <p>Thanks to Varuna Meddage and Tingjun Yang for reporting the problem.</p>			

#### Associated revisions

**Revision eb3e6759 - 03/31/2017 01:54 PM - Gianluca Petrillo**

SpaceChargeMicroBooNE now reacts correctly if corrections are disabled.

This solves issue #16038 .

**Revision bd87cef0 - 03/31/2017 01:54 PM - Gianluca Petrillo**

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## History

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**#1 - 03/31/2017 01:32 PM - Gianluca Petrillo**

- Status changed from *New* to *Assigned*
- Assignee set to *Gianluca Petrillo*

The lack of failure in the test is understood.

I was expecting to see an assertion failure from SpaceChargeMicroBooNE, which was not observed.

While it is true that in the test area assertions are always enabled, since I am running in profiling mode the assertions are not even compiled in *in the libraries* (as `libboone_SpaceCharge_SpaceChargeMicroBooNE.so`), because the libraries are outside of the test area. Therefore those assertions can't be triggered.

**#2 - 03/31/2017 01:46 PM - Gianluca Petrillo**

- Description updated
- % Done changed from 0 to 10
- Estimated time set to 1.00 h

**#3 - 03/31/2017 01:59 PM - Gianluca Petrillo**

The representation type is not left uninitialised any more, but rather set to `kUnknown`.

More important, both `spacecharge::SpaceChargeMicroBooNE::GetPosOffsets()` and `spacecharge::SpaceChargeMicroBooNE::GetEfieldOffsets()` immediately return a null correction vector if the respective correction is disabled.

A fix was pushed in develop branch as [eb3e675929aee40ebc8d63d8b0e7c321c369ae19](#) .

**#4 - 03/31/2017 02:02 PM - Gianluca Petrillo**

- Status changed from *Assigned* to *Resolved*
- % Done changed from 10 to 100

As a final note: a failure in the unit test was also observed and reported by Herbert Greenlee, but the failure is just occasional, the root cause being an undefined state.

For that reason it was not noticed during the release cutting procedures by LArSoft first, and MicroBooNE then.

**#5 - 06/14/2017 01:42 PM - Katherine Lato**

- Status changed from *Resolved* to *Closed*