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Subject: [NMM/Veto-shield] LBCF simulation beta for hexagonal tubes

Hi Everybody,

The lbcfsim package has been updated to fix a geometry bug, and then it
was updated to include a 'beta' version of the hexagonal tubes. I call it
a beta because I have checked the geometry at only the simplest level.
While the tubes seem to be placed correctly in the geometry viewer and no
overlaps seem to be present, I wouldn't be surprised if this didn't hold
up exactly to further scrutiny, but is approximately correct. It is known
that the orientation of the hexagonal tubes are not treated correctly in
some situations, these are being worked on (see below). The tags for these
releases are as follows:

(v1.0.3)

Bug fix. Since v1.0.2 there was a bug which made the panel 8 geometry
incorrect. The panel should have been at an angle such that it was higher
toward the middle of the cavern. Fixing the db coordinate transformation
bug but neglecting the change that that should induce in this angle,
resulted in the panel being apparently higher toward the western edge of
the cavern. This was realized and patched in v1.0.3.

(v1.1.1)

Preliminary functionality increase at v1.1 and bug fix at v1.1.1. An
option was included so that tubes are made hexagonal with 8 gas cells per
tube. The option is "--hex" and affects the tube geometry and last column
output. When using this option the last column output is a number that
should be deconstructed as follows:

PPPTTTC, where PPP = panel, TTT = tube, C = channel. Leading zeros are
omitted as always. The channel specification is now:

0,2,4,6 = inner cells
1,3,5,7 = outer cells

This functionality increase is preliminary because the orienation of the
inner and outer channel is not handled perfectly. I have only used the
database placement coordinates of the inner channel and the outer channel
has been constructed at a constant displacement relative to that. There
should be a re-orienation depending on what the database says of the
inner-outer displacement. Further, there was a peculiarity that when I
made the tubes the correct size to the best of my knowledge (from the
Tufts design spec.) and tried to place the correct sized inner gas cells
inside of the tubes -- the gas material apparently was larger than the
tube. That shouldn't have been and I'm investigating it, but for now I
decreased the size of the gas tubes so that the geometry is closed and
looks approximately correct.

The update v1.1.1 included a bug fix where the tubes were assigning all
hits to the inner sensitive detector, never the outer. This was a simple
fix and should now be stable in the sense that cells 0,2,4,6 and 1,3,5,7
should be different sensitive detectors. Their specifications as "inner"

or "outer" are subject to the previously mentioned imperfections in the
implementation.

One can clone a specific tag like this:

```
git clone <repository> <tag_name>
```

Or, you can checkout that tag as a branch in your working repository like:

```
git checkout -b <new_branch_name> <tag_name>
```


Thanks,
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