
Subject: Info about NeuLAND simulations
Posted by [PaoloR](#) on Tue, 27 Oct 2015 14:46:41 GMT
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Dears,

I would like to run some simulations on NeuLand response to protons and neutrons. While I did some work with (old)Land I have never run simulations using NeuLand. I needs some help for that.

- 1) Which r3broot, fairroot, fairsoft version do you suggest? I do not want to use root 6!
- 2) Is git version more updated with respect to svn?
- 3) Which geometry is the most "reliable" for the NeuLAND prototype and/or full NeuLAND?
- 4) Have you got more "realistic" results with Geant3 or Geant4, and which "physics setting" do you suggest?
- 5) Which are the most reliable Digitizer, neutron clustering/reconstruction task, and thresholds setting?

In addition I have tried to use <https://github.com/bl0x/r3broot-install> of <https://www.r3broot.gsi.de/automated-installation> ...but it does not seem to work properly. Here is some output:

```
pcget@pcgetS2:~/ANALISI/PAOLO/FAIRROOT/r3broot-install$ r3b-root-install.sh apr13
pcget@pcgetS2:~/ANALISI/PAOLO/FAIRROOT/r3broot-install$ r3b-root-install.sh feb14
pcget@pcgetS2:~/ANALISI/PAOLO/FAIRROOT/r3broot-install$ r3b-root-install.sh sep12
pcget@pcgetS2:~/ANALISI/PAOLO/FAIRROOT/r3broot-install$ r3b-root-install.sh trunk
Selected corresponding fairsoft version jul15p2
Selected corresponding fairroot version v-15.07
Installing FAIRSOFT
Sources are placed in a directory 'fairsoft/jul15p2' inside the current dir.
OK? [Y/n]n
Aborting...
pcget@pcgetS2:~/ANALISI/PAOLO/FAIRROOT/r3broot-install$ r3b-root-install.sh trunk
Selected corresponding fairsoft version jul15p2
Selected corresponding fairroot version v-15.07
Installing FAIRSOFT
Sources are placed in a directory 'fairsoft/jul15p2' inside the current dir.
OK? [Y/n]Y
Aborting...
```

Subject: Re: Info about NeuLAND simulations
Posted by [Dmytro Kresan](#) on Tue, 27 Oct 2015 15:18:43 GMT
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Dear Paolo,

1) I would recommend R3BRoot master branch from GitHub, FairRoot v-15.07a and FairSoft jul15p2. All can be used with ROOT 5. But do not plan to stay long with ROOT 5 - soon there will be no support for it.

2) SVN repository of R3BRoot is not maintained any longer. All commits go to GitHub.

3) 4) and 5) Here I am not up-to-date. Maybe Jan Mayer can comment on this. Some remarks:

The geometry files are: neuland_s438b.geo.root (prototype from the latest experiment) and neuland_v12a_14m.geo.root for full NeuLAND.

Geant3 is better for neutrons and is faster. Me personally never used Geant4.

There is new version of digitiser in R3BRoot/neuland/R3BNeulandDigitizer, developed by Jan Mayer.

Best regards,
Dima

Subject: Re: Info about NeuLAND simulations
Posted by [Jan Mayer](#) on Tue, 27 Oct 2015 17:18:25 GMT
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Hello,

I am also investigating the response of NeuLAND to charged particles. I will open a topic on this in the next days.

1) I use FairSoft@master, FairRoot@master, and r3broot@dev. Currently the changes to the tagged versions are not that big, and the changes to master are not that frequent. Currently I use Root5, but plan to switch to Root6, so I can write macros that suck less .

4) That is a difficult topic. Some people have expressed some "distrust" in the Geant4 PhysicsLists principle, maybe because it does not depict the idea of there being "one real world physics".

Currently, all my simulations run with Geant3, however I need to rerun everything with Geant4 soon.

5) For Digitizing, I would shamelessly recommend my own R3BNeulandDigitizer (mind the small "L"), after this has been merged. Its results are similar to the R3BLandDigitizer, but you can actually understand what it does. And it is about 20 times faster. See also the thread on this topic. It includes a threshold setting, but you should not need to worry about that. I cannot recommend any clustering/reconstruction task at the moment, but if you need something right now, have a look at the land scripts.

For Installation: It seems you are stuck at the very first step of installation. I have no experience with the automated script. It seems to interpret all your input as command to abort. Have you tried just pressing enter w/o input? Editing the script might help as well.

Manual installation is not all to difficult:

Do not install to system directories (no sudo!), environment variables are everything.

First, check your compiler `$gcc --version` must not be too old, gcc (GCC) 4.9.1 20140922 (Red Hat 4.9.1-10) or similar is fine. Most distributions have something called a "devtoolset", which provides non-stoneage versions.

Have a directory dedicated to holding all sources, builds and installation, lets call it `/data/you/simulations/` (your Basepath)

```
git clone https://github.com/FairRootGroup/FairSoft.git FairSoft-src
cd FairSoft-src
./configure.sh
```

```
compiler=gcc
debug=no
optimize=yes
geant4_download_install_data_automatic=yes
geant4_install_data_from_dir=no
build_root6=
build_python=yes
install_sim=yes
SIMPATH_INSTALL=/data/you/simulations/FairSoft
platform=linux
```

If this works, clone and install FairSoft, e.g. using
<https://gist.github.com/janmayer/746246e9c7cce4816830> (carefully adjust paths!)
If that works, install r3broot.

Subject: Re: Info about NeuLAND simulations
Posted by [PaoloR](#) on Wed, 28 Oct 2015 04:23:23 GMT
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Dear Dmytri and Jan, thanks a lot for info.
I will install the version you have suggested, take a look at and work on that and will come back to the forum when I need.
Since Jan is also investigating the response of NeuLAND to charged particles, I can ask if he has some results about proton vs neutron discrimination in NeuLAND. In the (old)LAND the veto wall in fornt of LAND made that job. What I would like to get from simulations is if (and how) it is possible to separate neutrons from protons from the NeuLAND first plane. I expect that a bi-dimensional plot of deposited energy vs velocity could allow such a discrimination, but it is not more than a guess.

Subject: Re: Info about NeuLAND simulations
Posted by [PaoloR](#) on Thu, 29 Oct 2015 12:03:34 GMT
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I am trying to install FairSoft-jul15p2 on debian jessie (stable), but I get the following error in cmake (see at the end...). The version of cmake in jessie is 3.0.2

```
*** Compiling Geant4-lib .....  
*** Package Geant4-build is OK ***  
-- Reusing dataset G4NDL (4.5)  
-- Reusing dataset G4EMLOW (6.41)  
-- Reusing dataset PhotonEvaporation (3.1)  
-- Reusing dataset RadioactiveDecay (4.2)  
-- Reusing dataset G4NEUTRONXS (1.4)  
-- Reusing dataset G4PIL (1.3)  
-- Reusing dataset RealSurface (1.0)  
-- Reusing dataset G4SAIDDATA (1.1)  
-- Reusing dataset G4ABLA (3.0)  
-- Reusing dataset G4ENSDFSTATE (1.0)  
CMake Error at cmake/Modules/Geant4ConfigureConfigScript.cmake:120 (list):  
  list sub-command REMOVE_ITEM requires two or more arguments.  
Call Stack (most recent call first):  
  CMakeLists.txt:137 (include)
```

```
CMake Error at cmake/Modules/Geant4ConfigureConfigScript.cmake:221 (list):  
  list sub-command REMOVE_ITEM requires two or more arguments.  
Call Stack (most recent call first):  
  CMakeLists.txt:137 (include)
```

```
-- The following Geant4 features are enabled:  
GEANT4_BUILD_CXXSTD: Compiling against C++ Standard 'c++11'  
GEANT4_USE_SYSTEM_EXPAT: Using system EXPAT library  
GEANT4_USE_GDML: Building Geant4 with GDML support  
GEANT4_USE_G3TOG4: Building Geant3 ASCII call list reader library  
GEANT4_USE_OPENGL_X11: Build Geant4 OpenGL driver with X11 support
```

Do you think we need a more recent version of cmake (for example compiled from source ?)

Subject: Re: Info about NeuLAND simulations
Posted by [Jan Mayer](#) on Thu, 29 Oct 2015 12:39:40 GMT
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PaoloR wrote on Thu, 29 October 2015 13:03 I am trying to install FairSoft-jul15p2 on debian jessie (stable), but I get the following error in cmake (see at the end...). The version of cmake in jessie is 3.0.2

Actually, FairSoft will (read: should) install cmake automatically, if the installed version is too old.

In jul15p2, the minimum required version is 3.1.0.

Was cmake installed during the FairSoft installation process? Should be at the top of the list.

Subject: Re: Info about NeuLAND simulations

Posted by [PaoloR](#) on Thu, 29 Oct 2015 23:41:41 GMT

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Yes cmake was installed during the FairSoft installation process, but the system was still using the old 3.0.2 version.

After forcing the system to use the most updated version, I have been able to install FairSoft, FairRoot and R3broot and successful run macros/r3b/r3bsim.C.

Now installation is gone...thanks a lot.

I am looking to disturb you again, hopefully, to discuss simulation results!
