Subject: info on charged particle simulations into NeuLAND
Posted by PaoloR on Tue, 07 Feb 2017 12:38:12 GMT
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Hi,
I am back in working on simulating NeuLAND response to charged particles after a long stop.
I have downloaded the latest R3Broot version (dev).
Could someone inform me about which is the status of simulating NeuLAND response to charged particles and which is the best strategy to do that, i.e. which macros/processes and settings are tuned for that?
I see a folder macros/r3b/neuland/chargedparticles but the GEO files required by Step1_Simulate (neuland_v2_1400cm_30dp.geo.root,r3b_cave_vacuum.geo) are not in the repository.

Subject: Re: info on charged particle simulations into NeuLAND
Posted by Jan Mayer on Fri, 10 Feb 2017 14:17:06 GMT
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Hi,

welcome back.

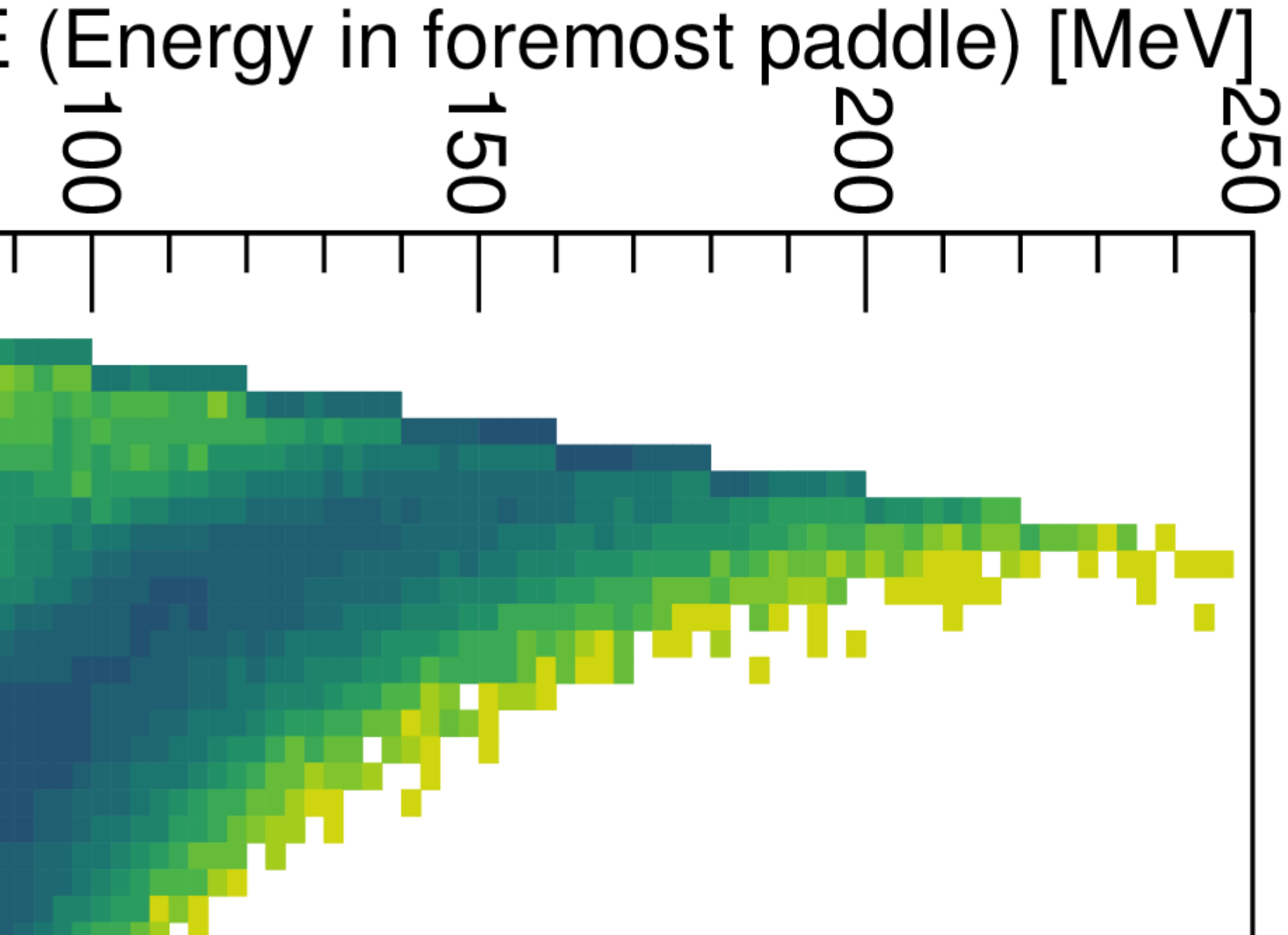
First, the missing files:
- 'r3b_cave_vacuum.geo' is simply 'r3b_cave.geo' with 'vacuum' instead of 'Air' in line 3. This does make a significant difference (as you would expect for charged particles flying through 14m of air). I'll commit it to the repository for convenience.
- 'neuland_v2_1400cm_30dp.geo.root' needs to be generated, as there are to many variations to include them all. Run
root -l -q ${VMCWORKDIR}'/macros/r3b/geo/create_neuland_demo_geo.C(30, 1400, "v2_1400cm_30dp")'

The macros are not completely up to date but should be enough to start looking into the matter. Here, some primary charged particles with ~same AMeV are generated.

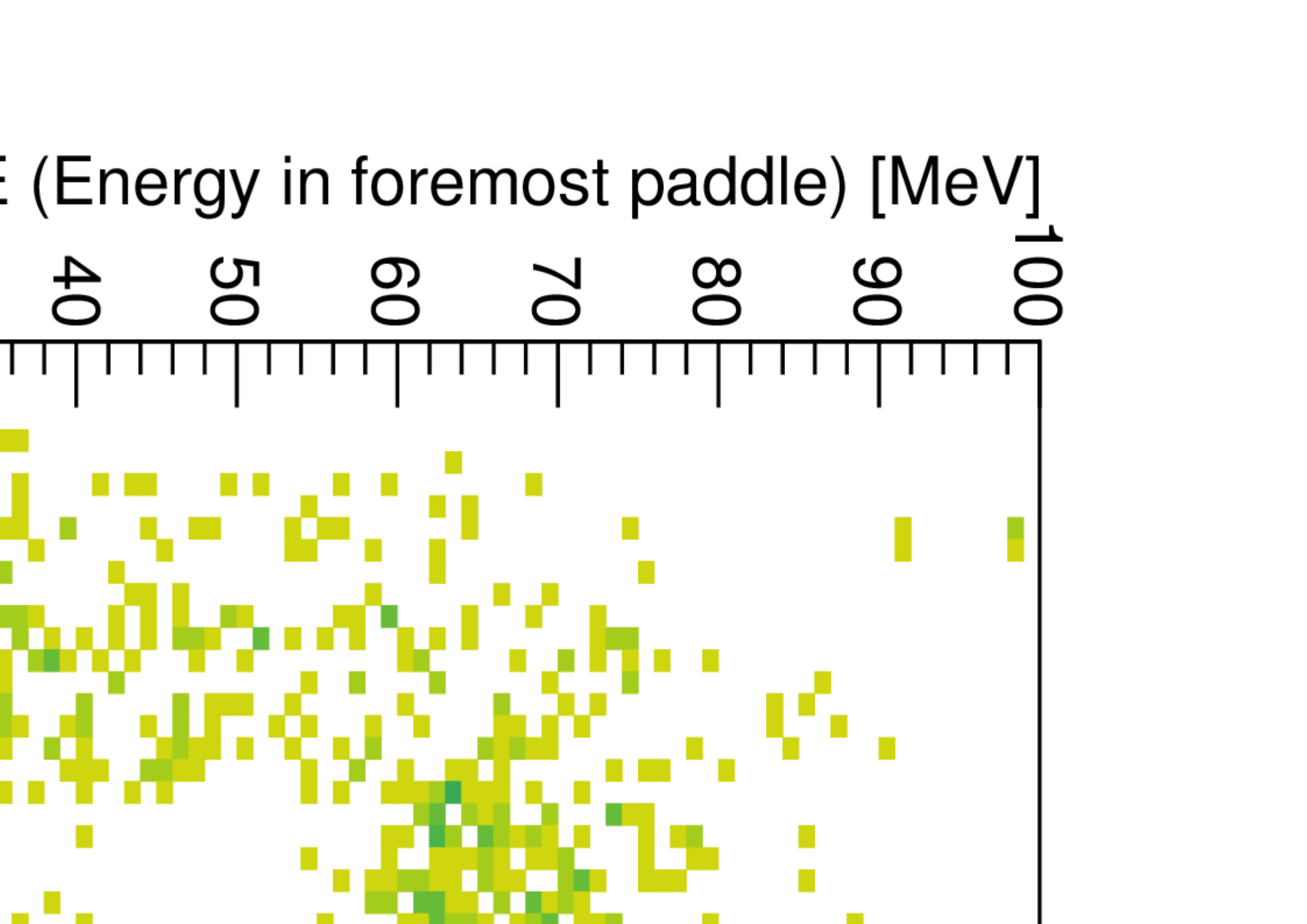
I'm not quite sure what you want to know about the response of NeuLAND to charged particles. Due to the huge amount of material, the total energy can be obtained for many ions/energies. One can, in principle, do the full \DeltaEE shenanigans, see the attached example for p,d,t,He-3,He-4 with fixed ~300 AMeV and an ~100-600 AMeV range.

Best,
Jan

File Attachments
1) deltaEE-range.png, downloaded 1259 times


E (Energy in foremost paddle) [MeV]
100
150
200
250

2) deltaEE.png, downloaded 1155 times


E (Energy in foremost paddle) [MeV]
40
50
60
70
80
90
100

Subject: Re: info on charged particle simulations into NeuLAND
Posted by PaoloR on Fri, 17 Feb 2017 14:38:42 GMT
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OK, I see. Thanks a lot.
Just one additional information.
Do yo still suggest me to use R3BNeulandDigitizer for the Digi step?

Thanks