Digitization code update (integrating Garfield data)

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Quick update on code

In digitization code diffusion coefficients were fixed. But the drift field can change. We should compute the coefficients from Garfield simulation.

Now diffusion coefficients are computed with Garfield data and we have two parameters less, and one more.

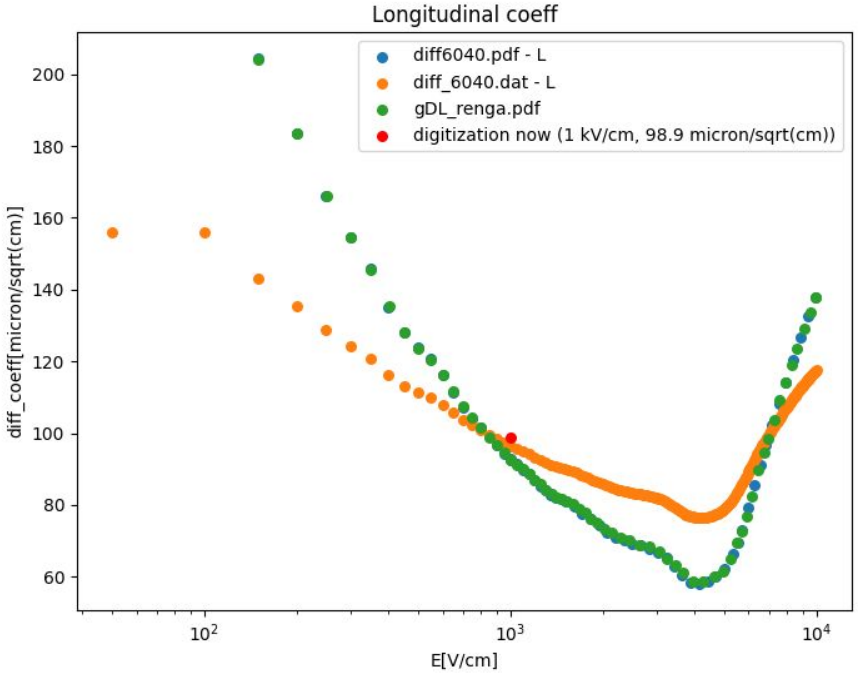
The **drift field value is also used to compute the drift velocity** from Garfield data, to simulate PMT waveforms.

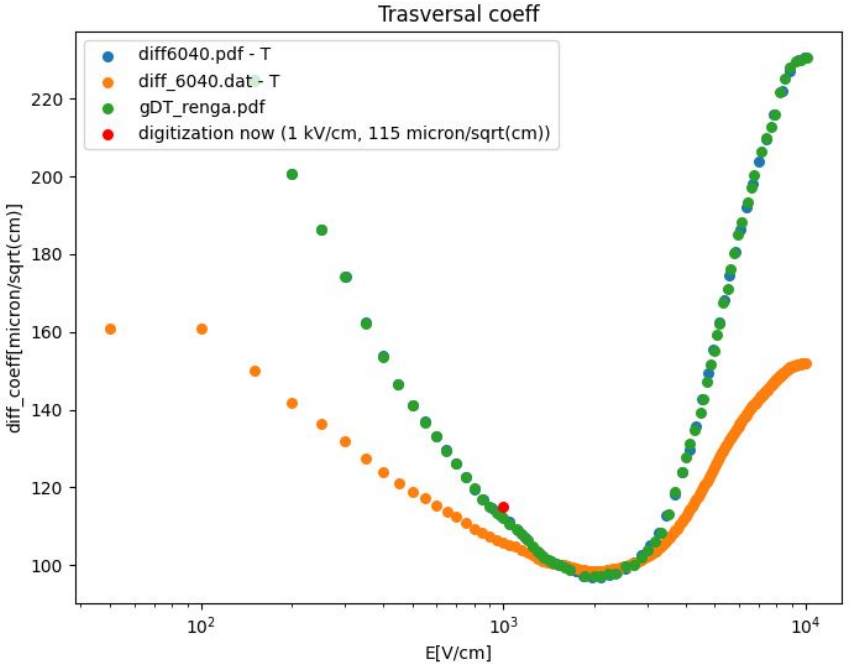
```
{
##from https://arxiv.org/pdf/2007.00608.pdf
'diff_const_sigma0T'    : 0.1225,    # diffusion constant [mm]^2
'diff_const_sigma0L'    : 0.0676,    # diffusion constant [mm]^2
'drift_field'           : 1000,      # drift field [V/cm]

'x_dim'                 : 346,       # first dimension of the detector
'y_dim'                 : 346,       # second dimension of the detector
'x_pix'                 : 2304,      # number of pixels in the first dimension
'y_pix'                 : 2304,      # number of pixels in the second dimension

#FIXME
'x_offset'              : -255.,     # geant4 x offset (x in geant4 is z in digitization)
'y_offset'              : 0.,        # geant4 y offset
'z_offset'              : 0.,        # geant4 z offset (z in geant4 is x in digitization)
'z_gem'                 : +250.,     # GEM z coordinate [mm] (it means an electron generated in z=0 will drift f
'tag'                   : 'Data',    # Set 'Data' to download a real pedestal run
'noiserun'              : 5861,      # pedestal run to add as background
'bckg_path'             : '/tmp/',   # set path to pedestal run, or leave it black if you want to download it

'ion_pot'               : 0.0462,    # ionization potential for He/CF4 60/40 [keV]
'GEM1_HV'               : 440.,      # HV of GEM1
'GEM2_HV'               : 440.,      # HV of GEM2
'GEM3_HV'               : 440.,      # HV of GEM3

# saturation parameters
'saturation'            : True,      # if 'True' saturation effect is applied on GEM3
'x_vox_dim'             : 346./2304, # x voxel size in [mm]
'y_vox_dim'             : 346./2304, # y voxel size in [mm]
'z_vox_dim'             : 0.1,       # z voxel size in [mm]
'A'                     : 1.52,      # free parameter (total scale factor MC/data)
'beta'                  : 1.0e-5,    # saturation parameter

# optical parameters
'photons_per_el'        : 0.07,      # number of photons per electron produced in the avalanche
'counts_per_photon'     : 2.,        # sensor conversion factor counts/photons
'sensor_size'           : 14.976,    # sensor dimension [mm] ORCA Fusion
'camera_aperture'       : 0.95,

'bckg'                  : False,      # if 'True' background is added
'NR'                    : False,     # 'True' for NR digitization, 'False' for ER
'events'                : 1,       # number of events to be processed, -1 = all
'donotremove'           : True,      # Remove or not the file from the tmp folder
'fixed_seed'            : False,     # If 'True' the seed of random distributions is set to 0 (for debugging pur

'randZ_range'           : 0.,        # Track z coordinate range [mm]. Tracks will be generated uniformly between
'absorption_l'          : 1400.,     # absorption lenght in [mm]

'Vignetting'            : True,      #Add vignetting effect according to the MAP
'Vig_Map'               : "vignette_runs03930to03932.root",
}
```

Currently using Renga's simulation for diffusion coefficients (green dots).

We also have another simulation (Davide's, orange dots) that is not compatible with Renga's.

Also, in digitization, the fixed coefficients we used (red dot) slightly overestimated Renga's simulation.





Check Fe55 spots for E = 1 kV/cm

Using Renga's simulation values at 1 kV/cm we still reproduce Fe55 spot size (tgausssigma) and integral.