CYGNO simulations update

CYGNO simulation working group

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CYGNO-04 simulations

- Cathode simulations:
  - implemented in Geant4 the new CAD design (2.5 mm thick, about 9 kg copper cathode)
  - ICP-MS measurements on Schreiber copper (primordial nuclides U-238, Th-232) are significantly lower than upper limits from HPGe
  - background from cathode seems not to scale simply with thickness (mass), under investigation

- GEM simulations assuming activity of TREX (clean GEMs)
  - background level 1.4E05 evts/yr

- Field cage
  - found a bug in the CAD geometry, fixing

Radon simulations

Preliminary Radon simulations in the LIME gas volume (only Geant4, no digitization)

- Radon chain produces alphas (MeV scale), but also electron recoils at low energy

- expected 3 alpha lines and increase in the low energy spectrum
  ➜ qualitatively in agreement with what observed in LIME

- plan to digitize this simulations and compare with LIME data