Hall C Engine

- Using the Concurrent Versions System to manage source code for the analysis engine.

- In future, any person can checkout the entire package. Would like to have it so each experiment has one person who can commit improvements to the CVS and each experiment is a "branch" on the CVS.

- Add the SRC directory, event display, CMOP, documentation and other software to the CVS.

"New" to the Hall C Engine

- (E.C.) Modify change HNTRACKS_MAX from 5 to 20 in hms_data_structures.cmn

- (I.N.) Modify TRACKING/total_eloss.f
  - Code now expects to get target info from parameter files.
  - Many more checks that nonzero parameter values are present. Corrects problem with checking variable 'angle' instead of 'tgangle'
  - Has either beer can or tuna can.
  - Use gtarg_type = 1 tuna can,2 beer can, $>=21$ solid and assume gtarg_type $<=20$ is liquid rather than based on target z.

- Modify ENGINE/g_analyze_misc.f (This needs more work!)
  - delete variable n_use_bpm and only use variable n_use_bpms
  - Comment out forced setting of guse_bpm_in_recon, gusefr, guse_frdefault
  - only set xp(3),yp(3),xm(3),ym(3) when n_use_bpms .eq. 3
  - gbpm_kappa is an array
  - JRA added check of fast raster pedestals

"New" to the Hall C Engine (Cont.)

- Modified INCLUDE/gen_data_structures.cmn

  - add variable geloss to common gen_beam

  - add gtarg_type to common gen_target

  - change GMAX_NUM_BPMS=3

  - change GBPM_KAPPA to array
    GBPM_KAPPA(GMAX_NUM_BPMS)

- (Hamlet) HMS aerogel software modified or added codes:

  - g_decode_fb_bank.f, h_aero.f,h_analyze_pedestal.f,
    h_calc_pedestal.f , h_clear_event.f, h_dump_peds.f,
    h_fill_aero_raw_hist.f, h_init_hist_id.f , h_reconstruction.f,
    h_register_param.f, h_reset_events.f, hms_aero_parms.cmn,
    hms_bypass_switches.cmn, hms_data_structures.cmn,
    hms_id_hist.cmn, hms_pedestal.cmn, gen_detectors.par

"New" to the Hall C Engine (Cont.)

- Modified engine so it calls to subroutines h_fieldcorr.f and g_apply_offsets.f

- Add subroutines s_apply_offsets.f and h_apply_offsets.f for kinematics offsets.

- (Vardan) Changes for HMS calorimeter

  - Modified h_cal.f, h_correct_cal_neg.f and h_correct_cal_pos.f so the energy determination for planes A and B can use both pos and neg PMT depending on setting of hcal_num_neg_columns.

  - Modified h_prt_cal_tracks.f so now by setting hdbg_tracks_cal = 1 one can calibrate the HMS shower constants while running the engine. Calls hcal_raw_thr.f and hcal_clb_det.f to determine the constants.

"New" to the Hall C Engine (Cont.)

- For h_track_test.f and s_track_test.f, add variables sweet1xscin, sweet1yscin, sweet2xscin, sweet2yscin which record which scint got hit inside the defined scint region Then hgoodscinhits is set to zero if front and back hodoscopes are abs(sweet1xscin-sweet2xscin).gt.3 or abs(sweet1yscin-sweet2yscin).gt.2

- Modified g_dump_histograms.f to replace call HREND(nametag) with call HRENDC(nametag) and close(IO)

- Modified ENGINE/g_open_source.f , g_get_next_event.f and INCLUDE/gen_filenames.cmn add code for analyzing segmented data files.

- (SAW) Modified many files so the each checks that the histogrm ID number is not zero.

- (SAW) Added CTP/thReport.c, thTree.c and thRootStuff.cpp for ROOT trees.

What to do next for Hall C Engine ?

- Need simple How-to for getting started

- Need to improve documentation.

- Any changes that I have missed?

    - Changes to tracking.

    - (PG) Beam energy beam energy corrections.

- Identify software person for each upcoming experiment.
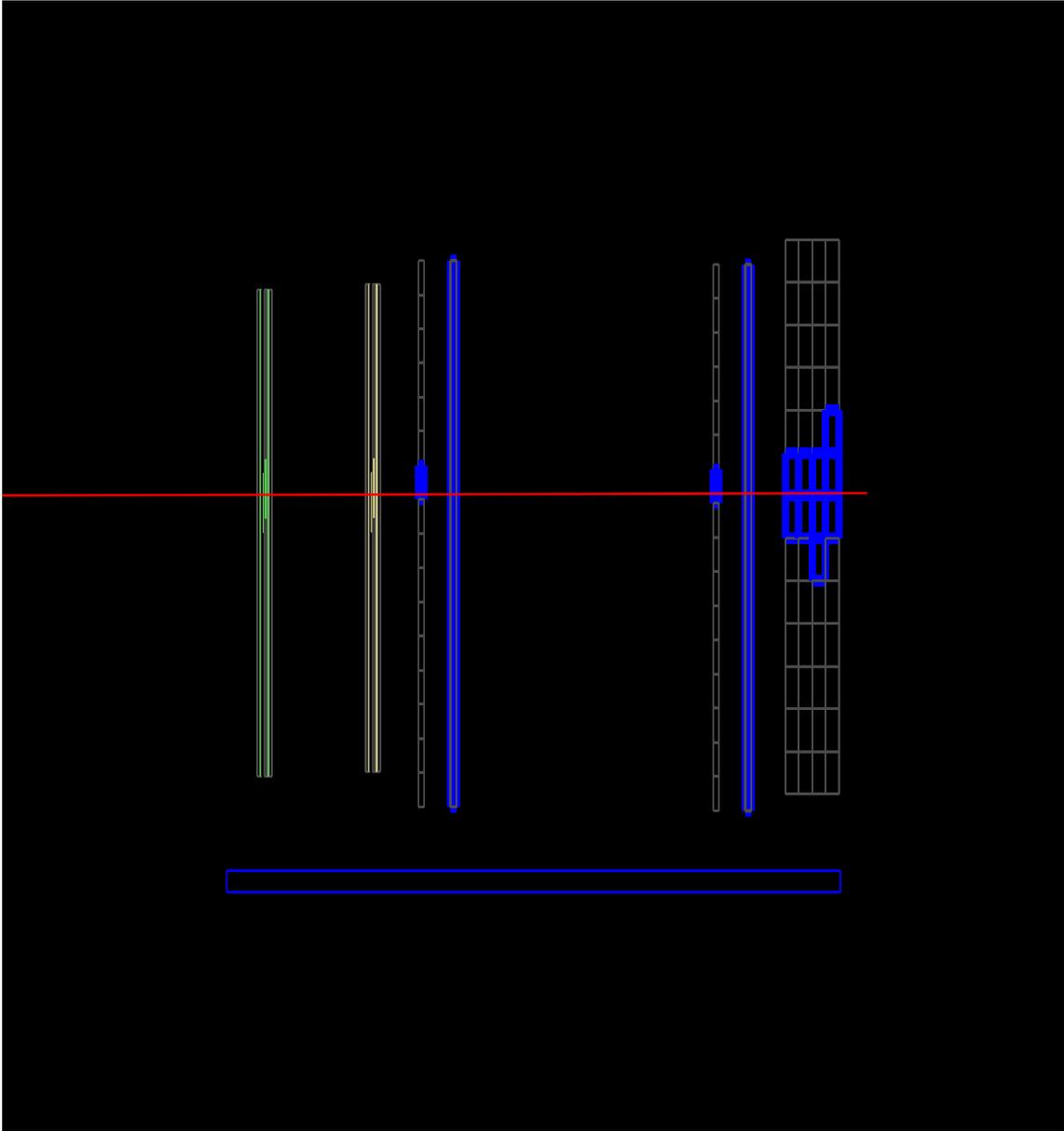
Event display

- Michael Katz-Hyman updated the event display code in 1999. New code in C++ and ROOT.

- Run engine with RPC on and then the event display code is run separately and grabs data for the engine and displays the event.

- What needs to be done:

  - Need to add aerogel to HMS.

  - Need to get SOS part working.

  - Need to add to CVS.
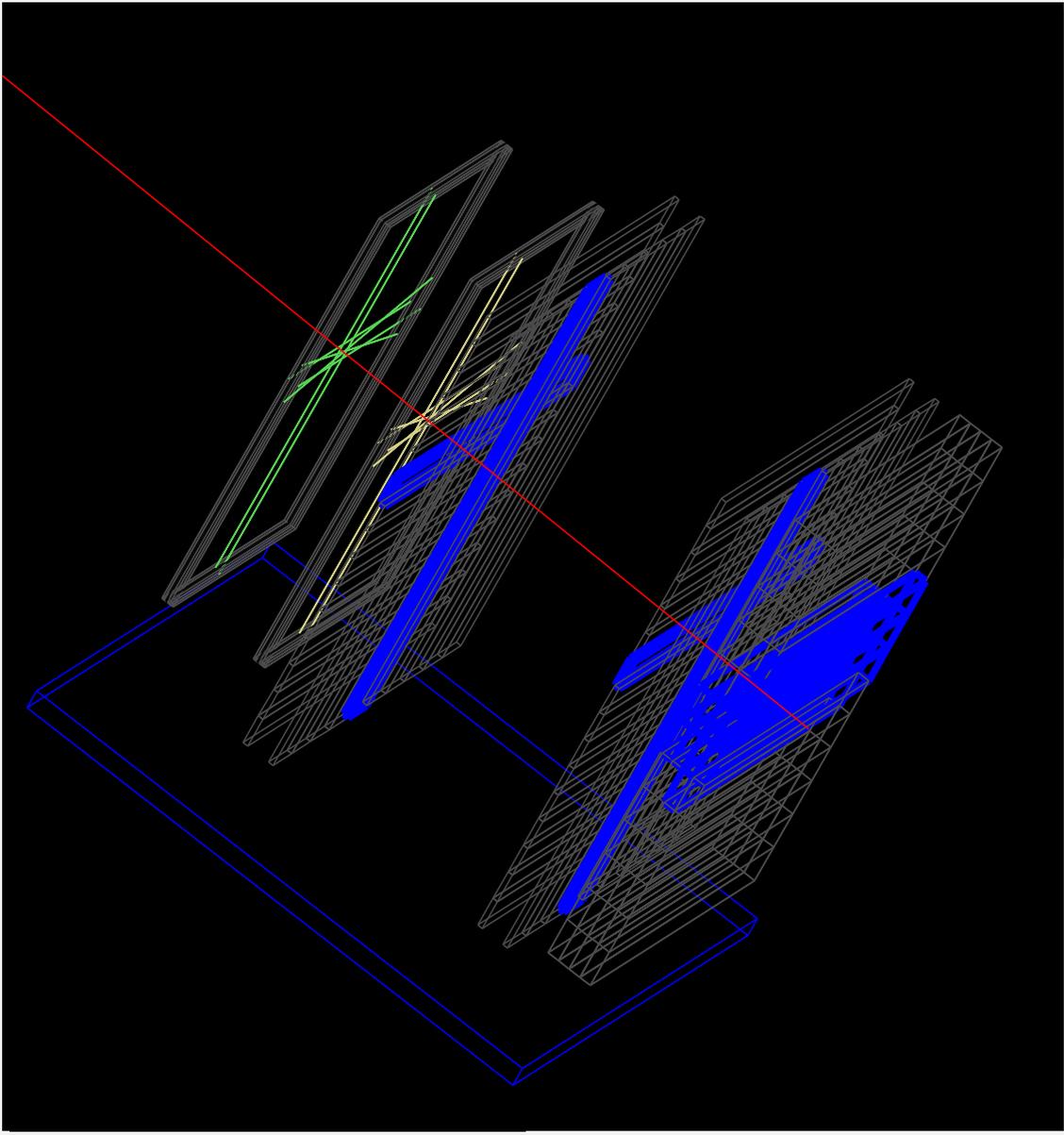
  - Need documentation and How-To.
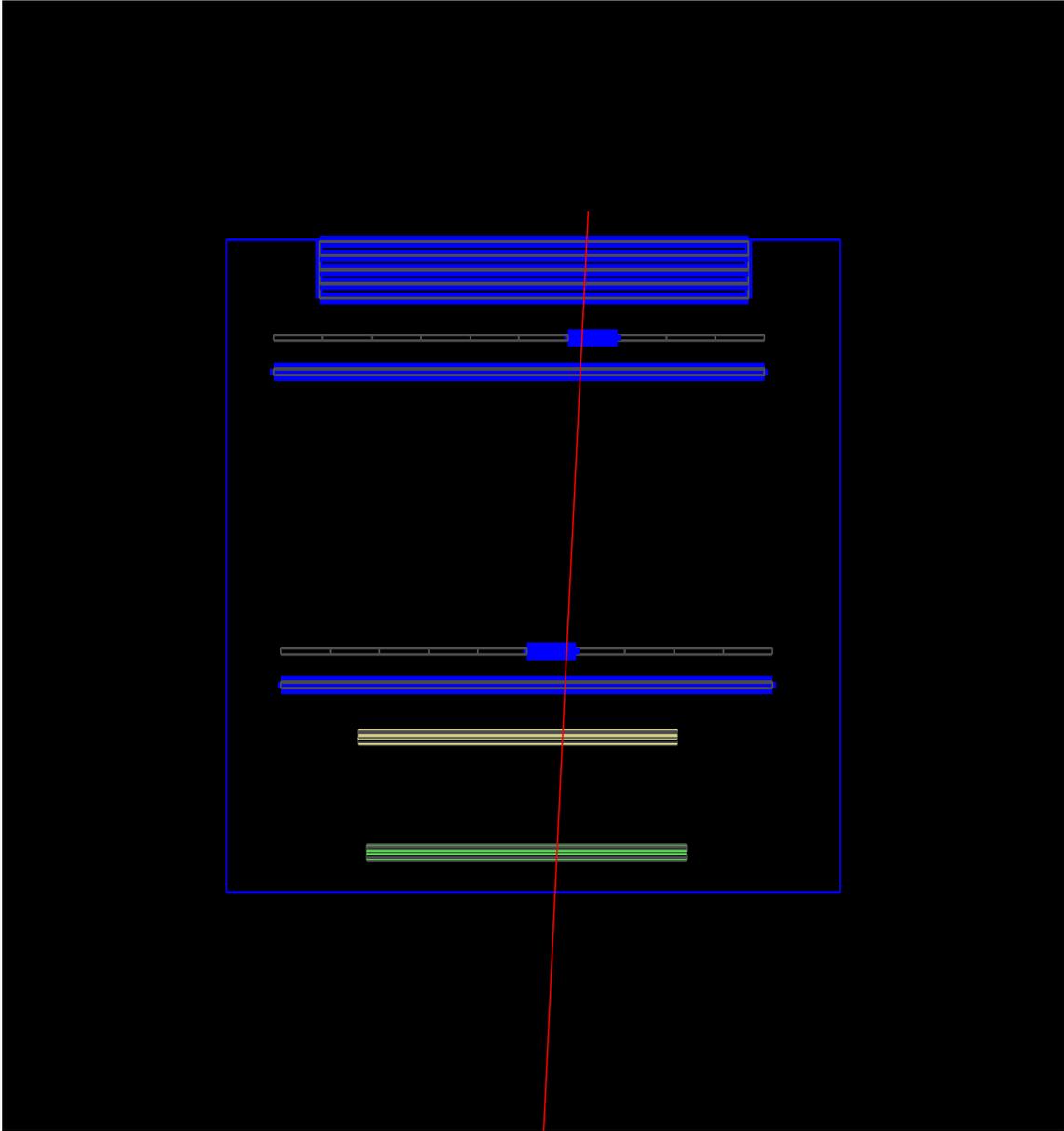
Side View

3D View

Hall C Matrix Element Optimization Package

- Can run on Sun or Linux.

- Used for E93038 to optimize matrix elements for 15cm target.

- What needs to be done:

  - Need to add to CVS.

  - Need documentation and How-To.

  - Need to clean up. Maybe eliminate KUIP interface.