

Plots from the LUXE Background: Tracker System: g+laser background samples (Phase 2)

Arka Santra

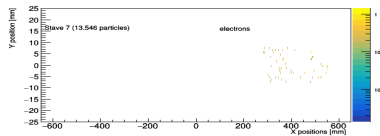
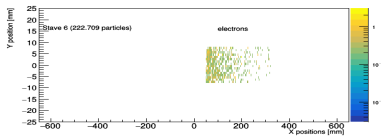
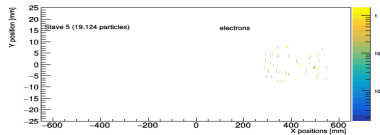
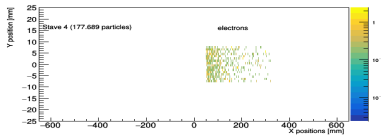
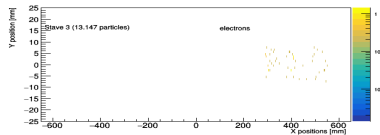
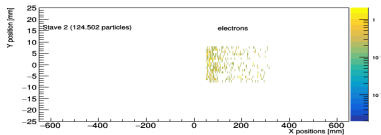
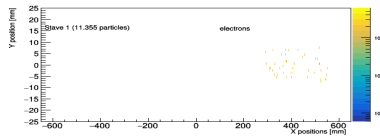
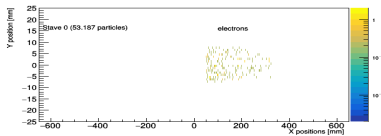
Weizmann Institute of Science

October 30, 2020

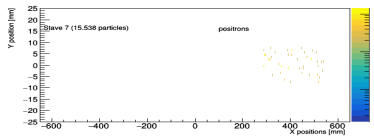
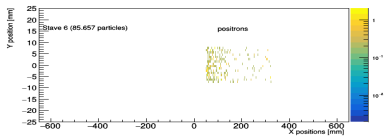
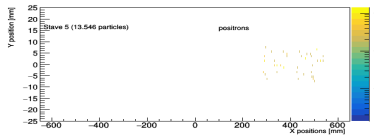
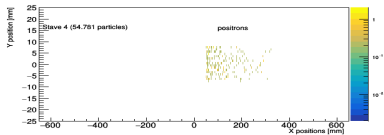
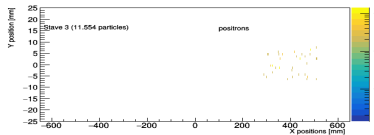
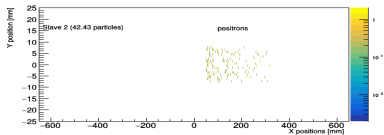
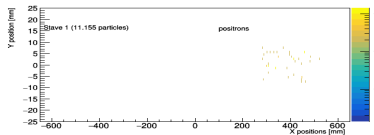
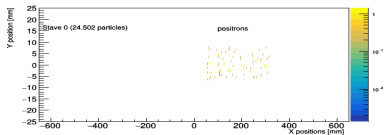
- Made the tracker plots from Sasha's code.
- Ran on the GEANT4 samples available on the DESY (5.02 BXs) for g+laser Phase 2 samples.
- No cut on vertex position or projection to magnet aperture.
- One can read off the total events in a plot from the legend entry.

- XY position of tracks, normalized to BX

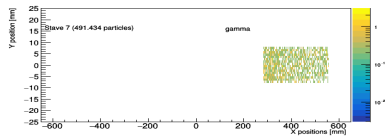
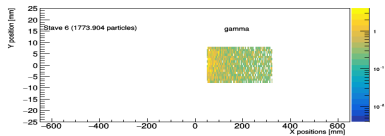
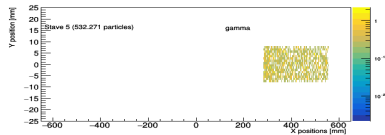
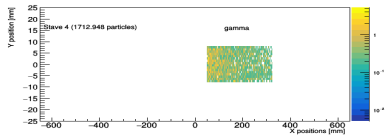
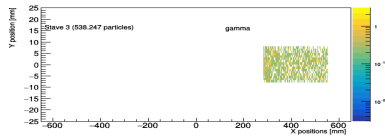
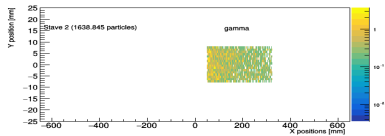
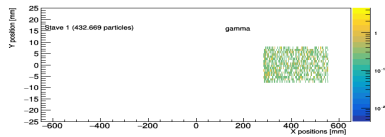
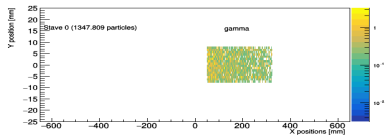
tracking_planes_track_xy_electrons (background)



tracking_planes_track_xy_positrons (background)

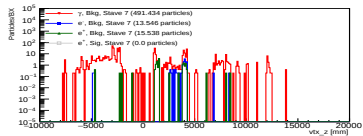
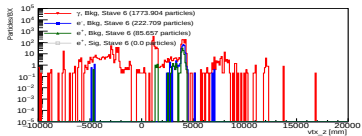
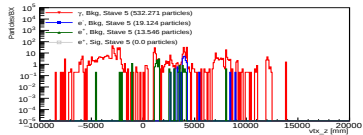
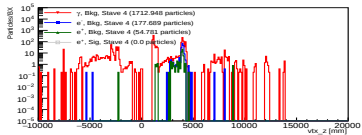
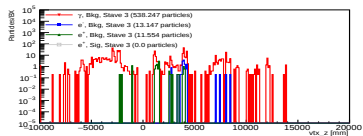
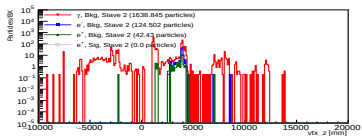
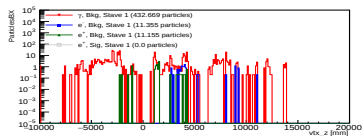
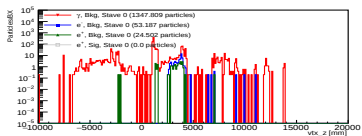


tracking_planes_track_xy_gamma (background)



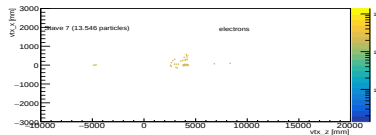
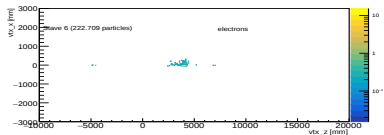
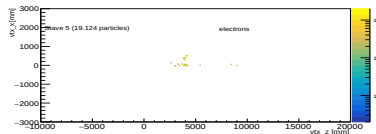
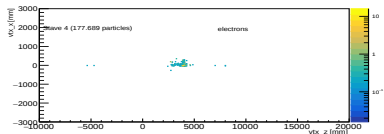
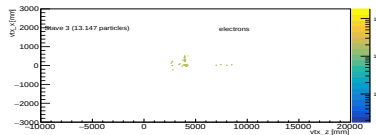
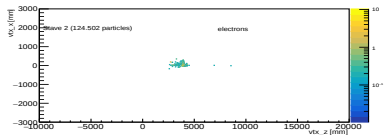
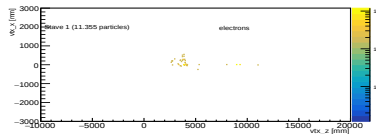
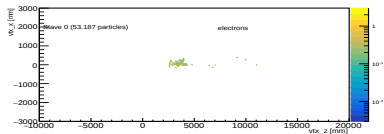
- vtx_z positions, normalized to BX

tracking_planes_vtx_z (background)

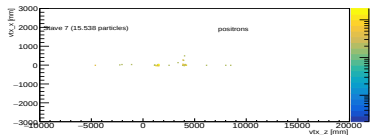
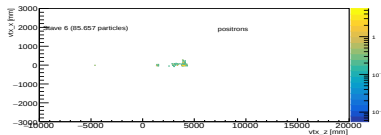
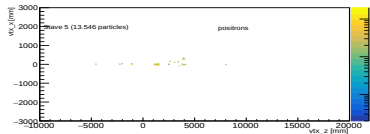
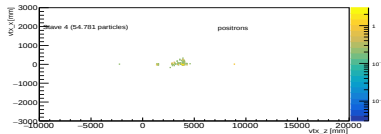
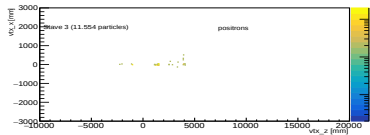
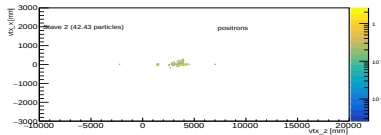
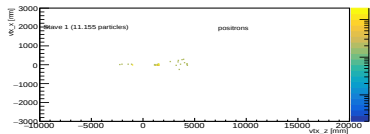
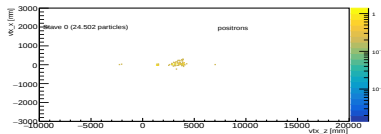


- vtx_x vs vtx_z positions, normalized to BX

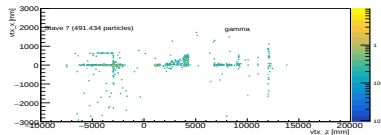
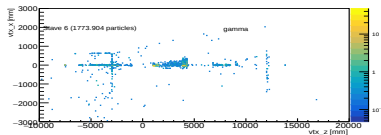
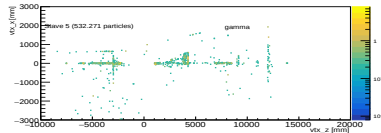
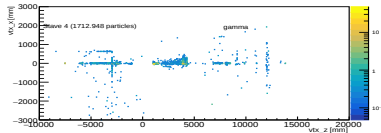
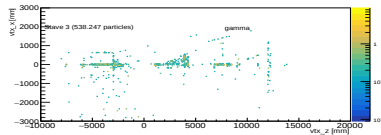
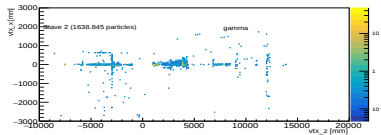
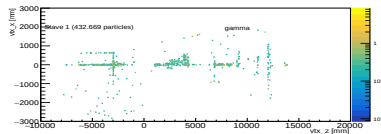
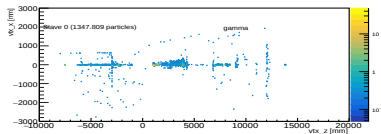
tracking_planes_vtxz_vtxx_electrons (background)



tracking_planes_vtxz_vtxx_positrons (background)

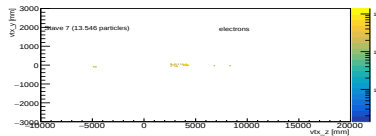
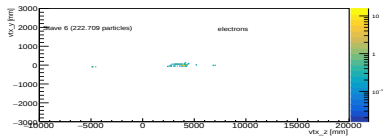
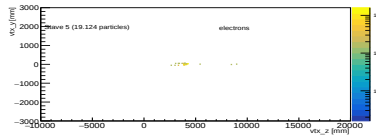
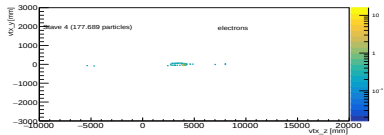
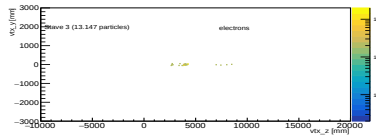
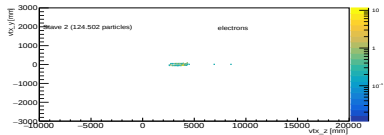
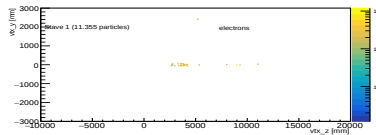
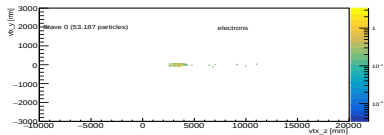


tracking_planes_vtxz_vtxx_gamma (background)

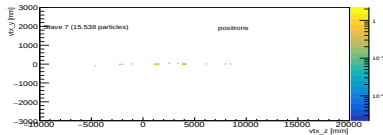
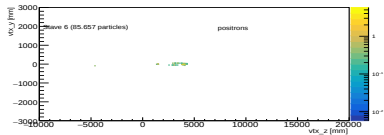
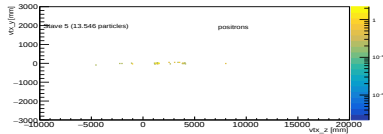
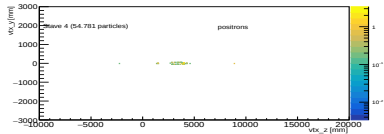
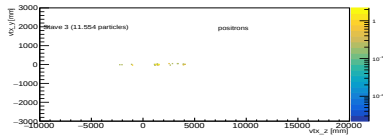
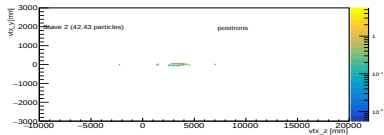
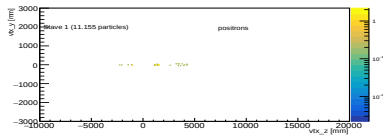
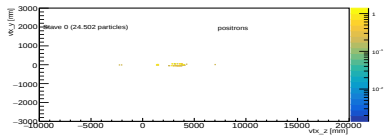


- vtx_y vs vtx_z positions, normalized to BX

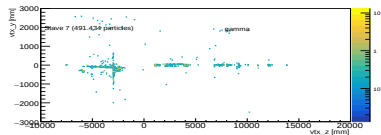
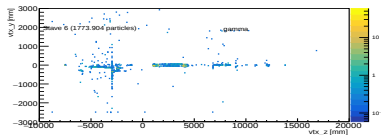
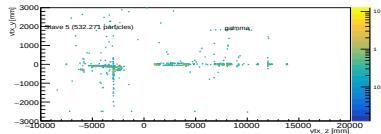
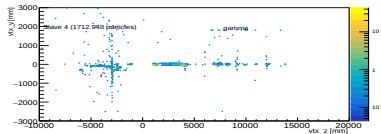
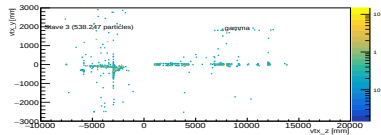
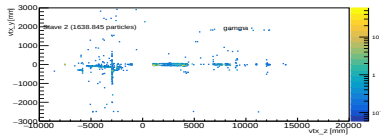
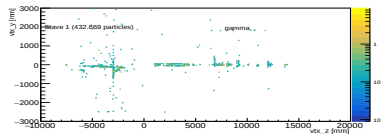
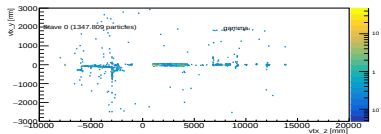
tracking_planes_vtxz_vtxy_electrons (background)



tracking_planes_vtxz_vtxy_positrons (background)

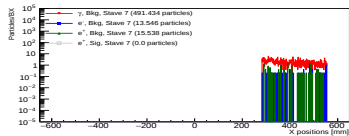
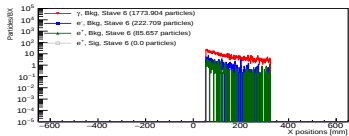
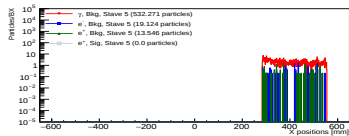
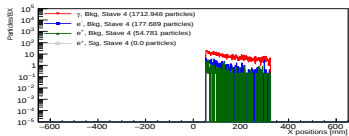
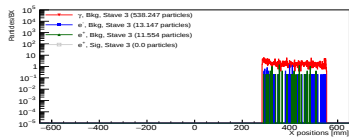
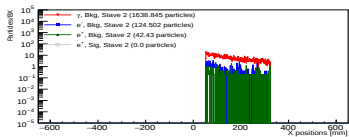
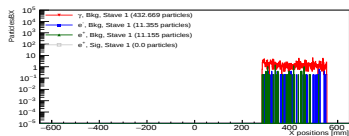
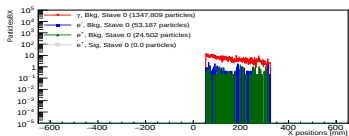


tracking_planes_vtxz_vtxy_gamma (background)



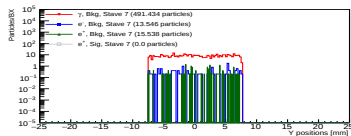
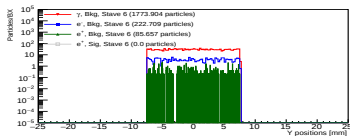
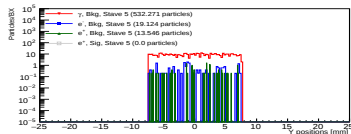
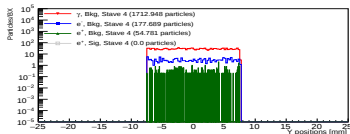
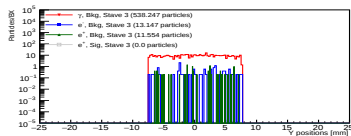
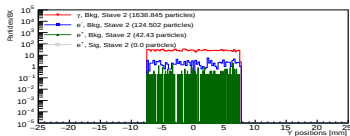
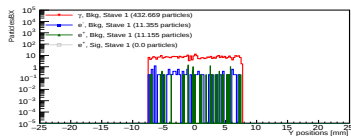
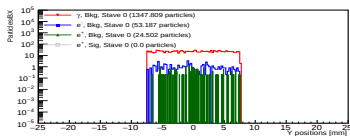
- 1D occupancy plots, in X normalized to BX

tracking_planes_background_track_x, all particles background



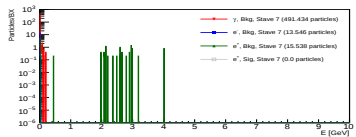
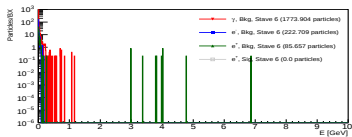
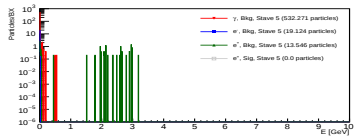
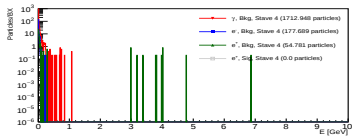
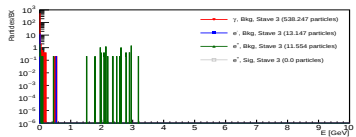
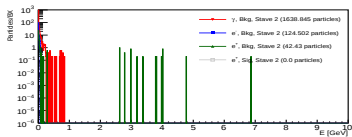
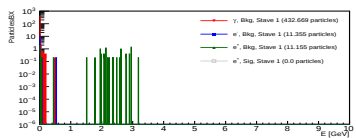
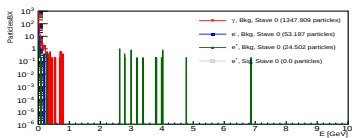
- 1D occupancy plots, in Y normalized to BX

tracking_planes_background_track_y, all particles, background

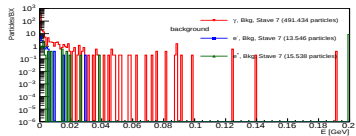
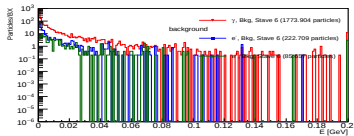
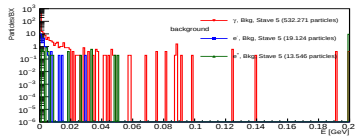
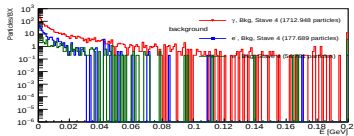
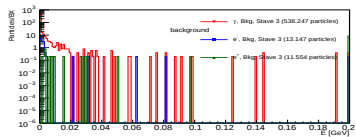
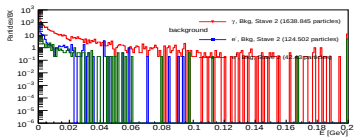
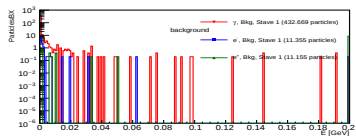
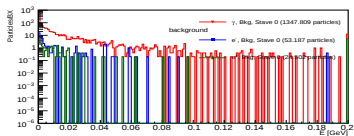


- track energy plots normalized to BX

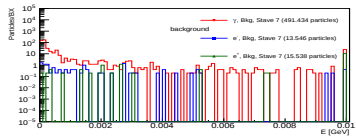
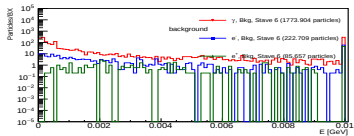
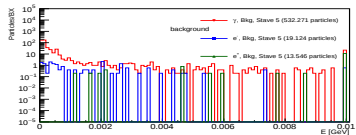
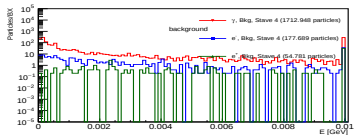
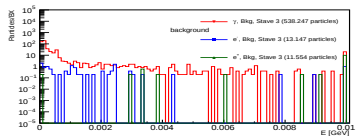
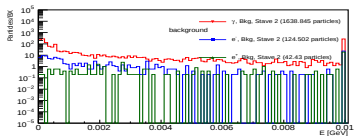
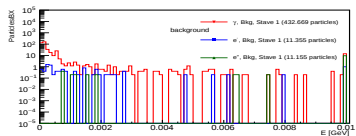
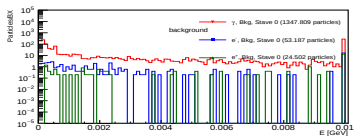
track_e, all particles for background



track_e, all particles for background (zoomed)



track_e, all particles for background (more zoomed)



- Background plots are made.
- Gamma constitutes the biggest background, then comes electron.
- Some positron backgrounds have low energies.