The plots from the tracker sub-system: in context of the LUXE CDR

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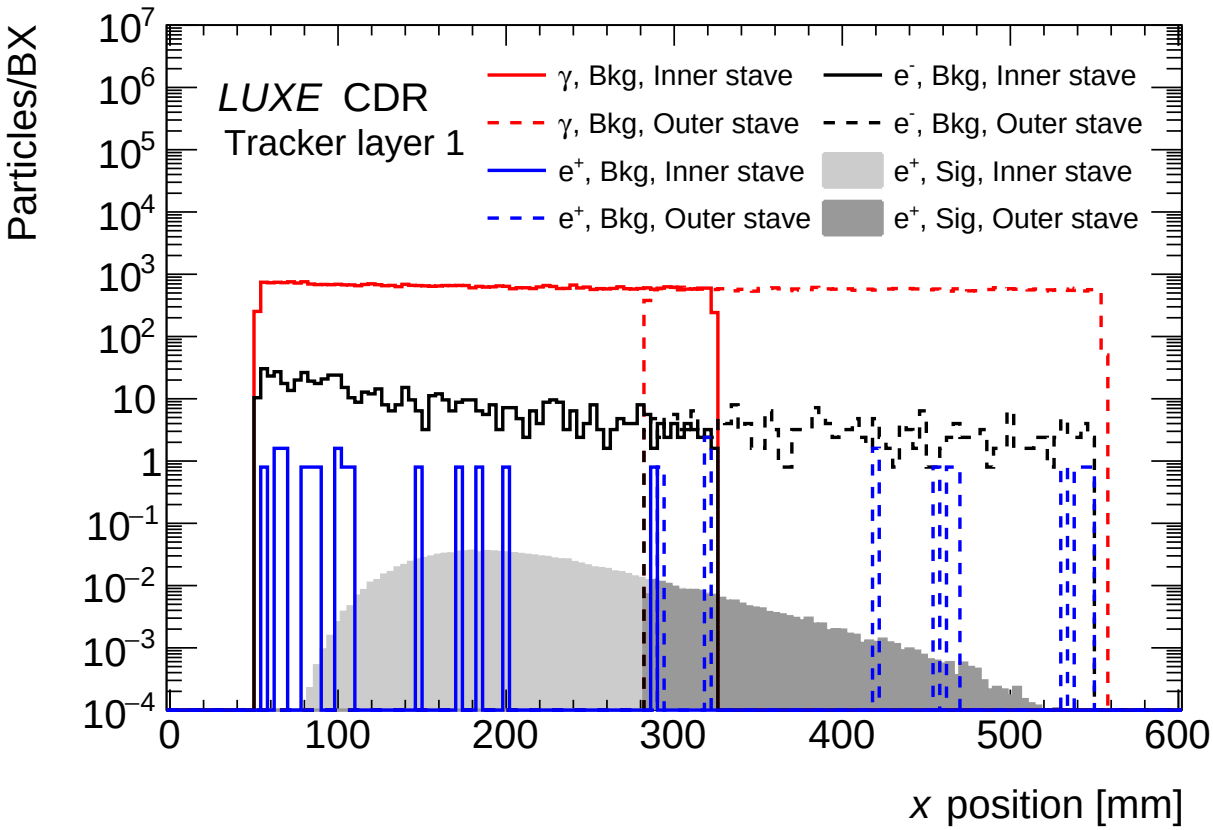

Fig 1. The number of particles per bunch crossing vs x position of tracks for the first layer (layer 1, closest to the interaction point). The background particles are estimated from the simulation of the electron-beam-only setup. The positron signal particles correspond to the electron+laser setup with the JETI40 laser (using a spot-size of 3 μm) and with the electron beam at 16.5 GeV. All particles intersecting the tracker layers are considered regardless of the actual energy deposition in the sensitive volume. Each charged particle traversing the sensitive volume is therefore assumed to generate a hit and hence, these hits will essentially participate in the subsequent tracking algorithm. The ALPIDE efficiency for detecting low energy photons is extremely small. Hence the photons can be ignored in the subsequent tracking algorithm. The solid lines (light gray fill for the positron signal) correspond to the tracks from the inner-most stave with respect to the beam axis (Stave 0) and the dashed lines (dark gray fill for the positron signal) correspond to the tracks from the outer-most stave with respect to the beam-axis (Stave 1). The inner and outer stave are positioned with a ~ 4 cm overlap in x in a distance of ~ 1 cm in z to form a layer.

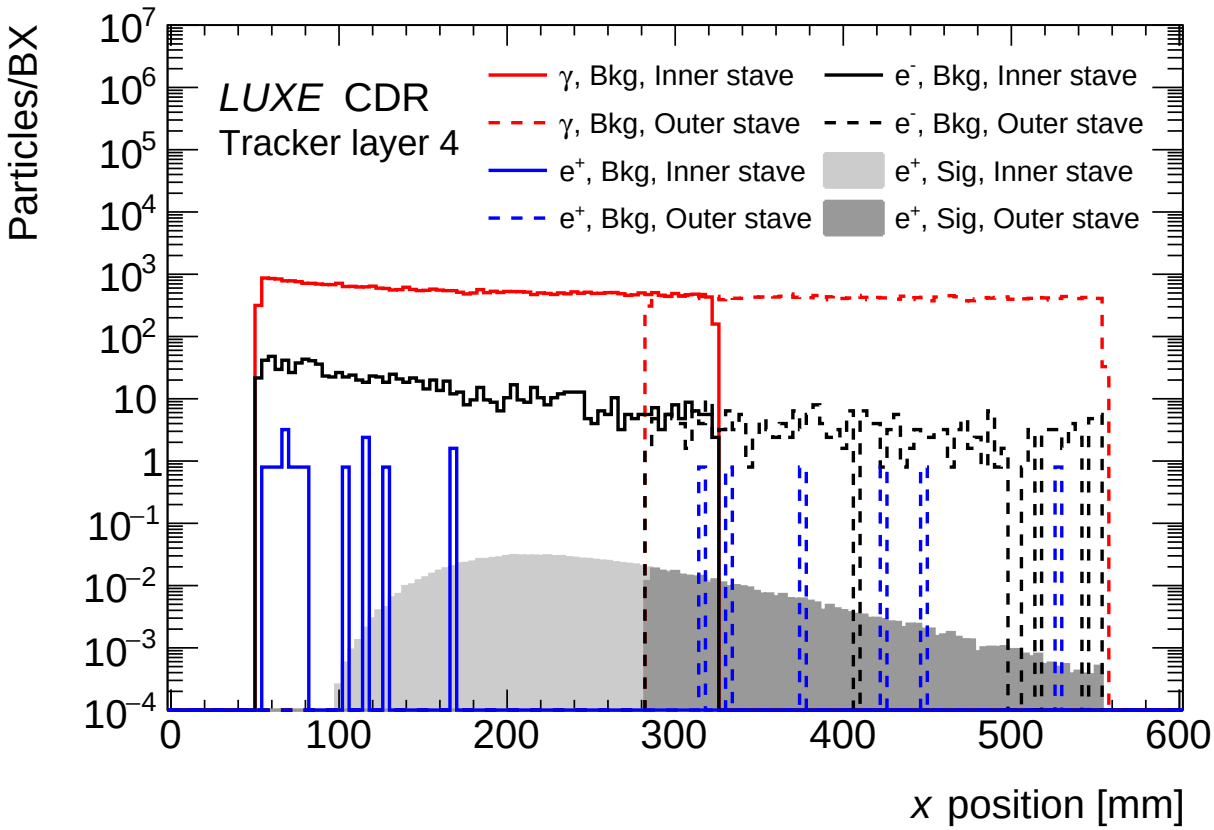

Fig 2. The number of particles per bunch crossing vs x position of tracks for the last layer (layer 4, furthest to the interaction point). The background particles are estimated from the simulation of the electron-beam-only setup. The positron signal particles correspond to the electron+laser setup with the JETI40 laser (using a spot-size of 3 μm) and with the electron beam at 16.5 GeV. All particles intersecting the tracker layers are considered regardless of the actual energy deposition in the sensitive volume. Each charged particle traversing the sensitive volume is therefore assumed to generate a hit and hence, these hits will essentially participate in the subsequent tracking algorithm. The ALPIDE efficiency for detecting low energy photons is extremely small. Hence the photons can be ignored in the subsequent tracking algorithm. The solid lines (light gray fill for the positron signal) correspond to the tracks from the inner-most stave with respect to the beam axis (Stave 6) and the dashed lines (dark gray fill for the positron signal) correspond to the tracks from the outer-most stave with respect to the beam-axis (Stave 7). The inner and outer stave are positioned with a ~ 4 cm overlap in x in a distance of ~ 1 cm in z to form a layer.

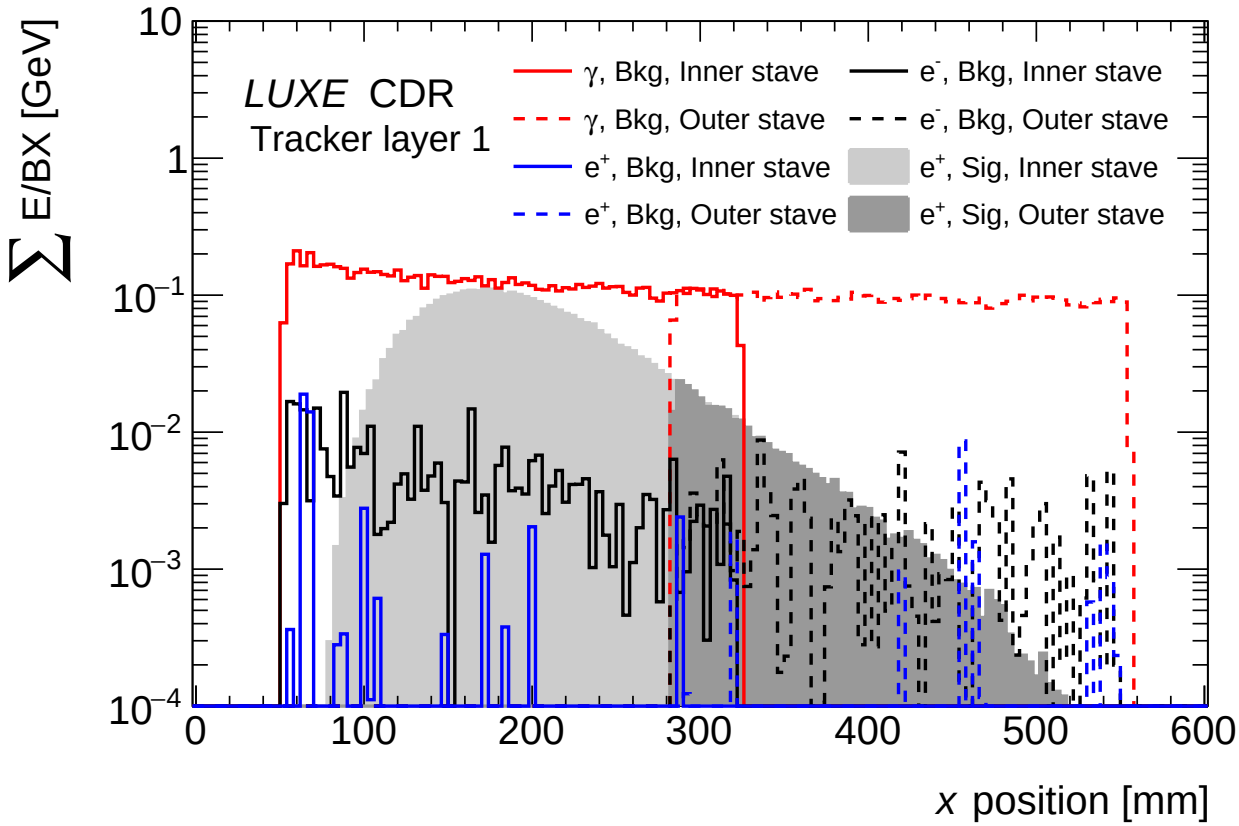

Fig 3. The sum of energy of particles per bunch crossing vs x position of tracks for the first layer (layer 1, closest to the interaction point). The background particles are estimated from the simulation of the electron-beam-only setup. The positron signal particles correspond to the electron+laser setup with the JETI40 laser (using a spot-size of 3 μm) and with the electron beam at 16.5 GeV. All particles intersecting the tracker layers are considered regardless of the actual energy deposition in the sensitive volume. Each charged particle traversing the sensitive volume is therefore assumed to generate a hit and hence, these hits will essentially participate in the subsequent tracking algorithm. The ALPIDE efficiency for detecting low energy photons is extremely small. Hence the photons can be ignored in the subsequent tracking algorithm. The solid lines (light gray fill for the positron signal) correspond to the tracks from the inner-most stave with respect to the beam axis (Stave 0) and the dashed lines (dark gray fill for the positron signal) correspond to the tracks from the outer-most stave with respect to the beam-axis (Stave 1). The inner and outer stave are positioned with a ~ 4 cm overlap in x in a distance of ~ 1 cm in z to form a layer.

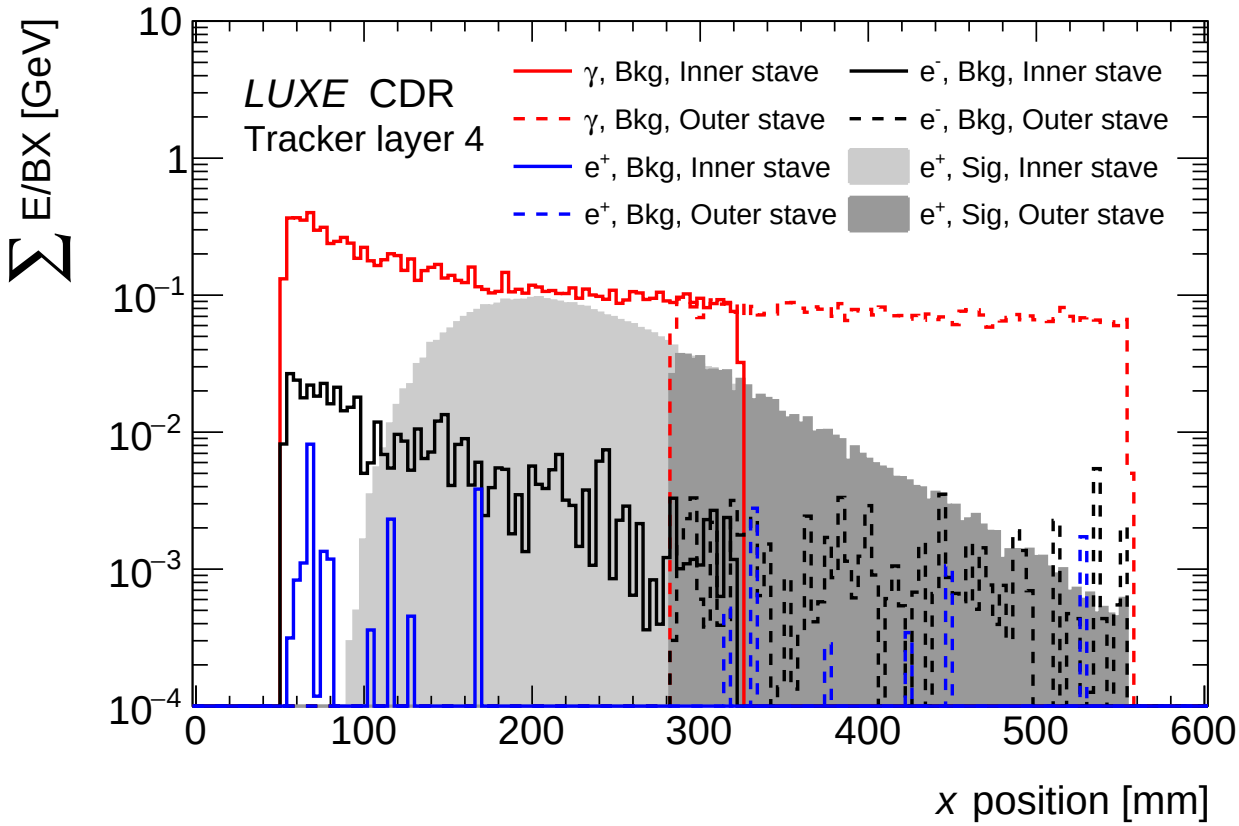

Fig 4. The sum of energy of particles per bunch crossing vs x position of tracks for the last layer (layer 4, furthest to the interaction point). The background particles are estimated from the simulation of the electron-beam-only setup. The positron signal particles correspond to the electron+laser setup with the JETI40 laser (using a spot-size of 3 μm) and with the electron beam at 16.5 GeV. All particles intersecting the tracker layers are considered regardless of the actual energy deposition in the sensitive volume. Each charged particle traversing the sensitive volume is therefore assumed to generate a hit and hence, these hits will essentially participate in the subsequent tracking algorithm. The ALPIDE efficiency for detecting low energy photons is extremely small. Hence the photons can be ignored in the subsequent tracking algorithm. The solid lines (light gray fill for the positron signal) correspond to the tracks from the inner-most stave with respect to the beam axis (Stave 6) and the dashed lines (dark gray fill for the positron signal) correspond to the tracks from the outer-most stave with respect to the beam-axis (Stave 7). The inner and outer stave are positioned with a ~ 4 cm overlap in x in a distance of ~ 1 cm in z to form a layer.