The Coordinate System for ILC LDC Detector Simulations

Suggestion for Standardisation

Adrian Vogel
DESY FLC

The Coordinate System

Direction of the axes is clear

- *z* along the (mean) beam direction
- *y* in the vertical direction, pointing upward
- *x* horizontal, perpendicular to both *y* and *z*
- right-handed coordinate system

Orientation of axes is unclear

- *z*: Where are electrons, where are positrons?
- *x*: Where is beam delivery, where is extraction? (in the case of a crossing angle)

The Need for Standardisation

All possibilities are equivalent,
but we should make a **consistent** choice

- tools should be usable without re-thinking
- data should be exchangable without conversion

The earlier we agree, the better!

Hints Towards a Choice

Detector simulations

- Brahms will soon use a crossing angle with $p_x > 0$
- Mokka has not made a choice yet

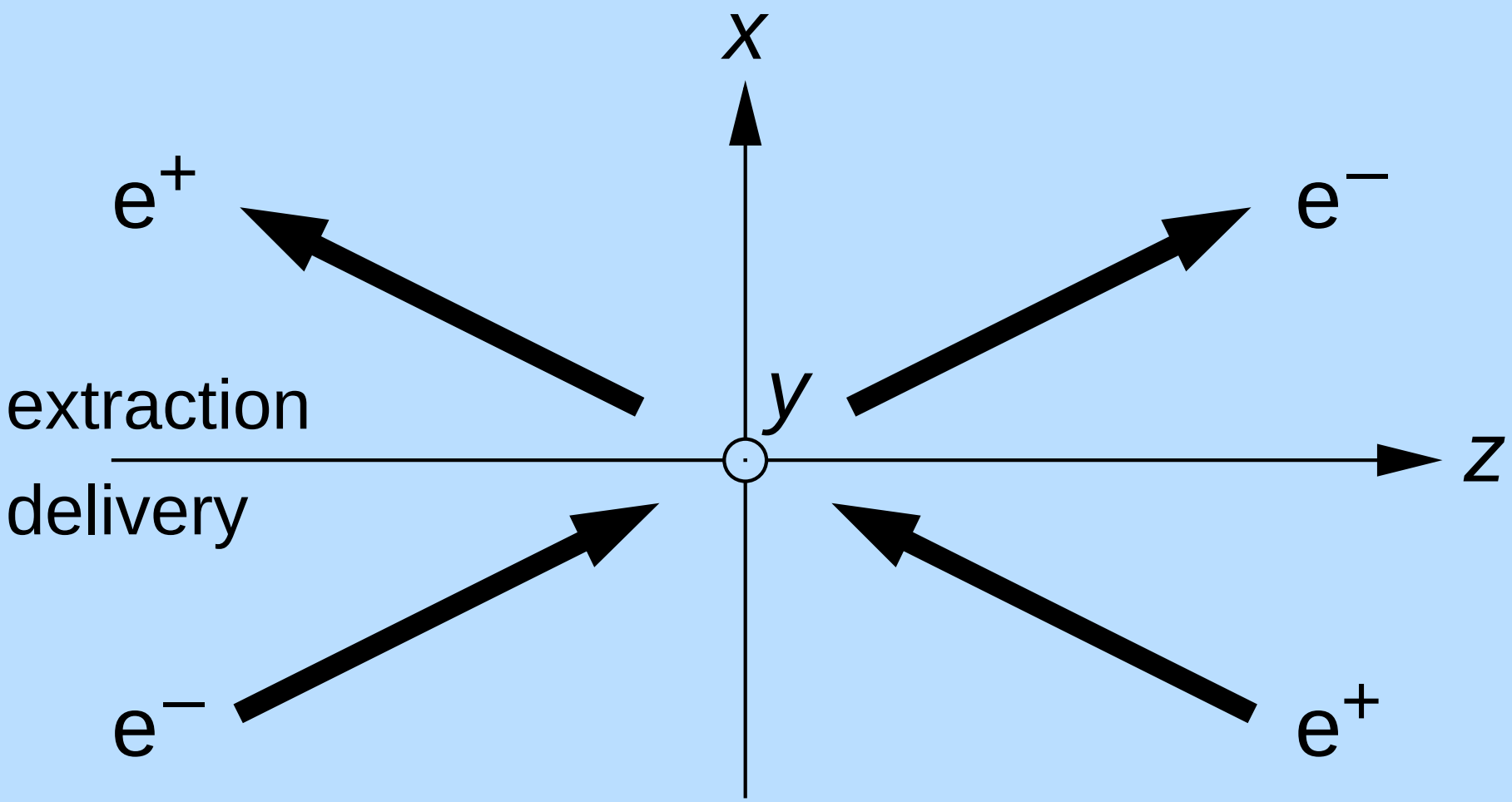
Particle generators

- most generators can define the initial state explicitly
- Guinea Pig uses $p_z(\mathrm{e}^-) > 0$, $p_z(\mathrm{e}^+) < 0$

Machine development

- has not made a final choice yet either
- design might finally be mirrored (site-dependent)

Suggestion (Top View)



Any opinions, suggestions, additions, complaints?