Secondary Particle Data Observations

Marcus Palm
CERN
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Signal integral vs. number of bunches

- **Plots:**
  - Signal/proton vs. number of bunches (normalized to a 1-bunch run)
  - All runs in “scan valley”:
    - Hor pos: [-18, -11]
    - Vert pos: [-8, 0]
  - No probe
  - 14 GeV/c

- **Target out:** More signal/proton with increasing number of bunches
- **Not observed with target in**
- (Same conclusions for 24 GeV/c…)
Linearity, target out, 14 GeV/c

- Plots:
  - Signal/proton vs. beam intensity
  - All runs in "scan valley":
    - Hor pos: [-18, -11]
    - Vert pos: [-8, 0]
  - No probe
- No major changes from low to high intensity

- 14 GeV/c
Linearity, target in

• Plots:
  – Integration of total signal vs. beam intensity
  – All runs in “scan valley”:
    • Hor pos: [-18, -11]
    • Vert pos: [-8, 0]
  – No probe

• Decreasing trend

• 14 GeV/c
Linearity, target in

- 24 GeV/c
Signal/proton

- No dump in the FLUKA simulations
- Very good agreement between MARS and FLUKA for the dump-insensitive detector at -20 degrees.
- MERIT results a bit puzzling…
Target in/target out ratio

Quote, target in/target out.

- MERIT
- MARS
- FLUKA (no dump)
Probe/Pump ratio

![Graph showing normalized probe/pump ratio over pump-probe time. The graph includes data points for Hg out and Hg in.]