Charge Fluctuations

Φ_q Energy Dependence

- Generalized Φ_x

  M. Gazdzicki and S. Mrowczynski,
  Z. Phys. C54 (1992) 127

$$\Phi_x = \sqrt{\frac{\langle Z^2 \rangle}{\langle N \rangle}} - \sqrt{1 - \frac{\langle x \rangle^2}{\langle N \rangle^2}}$$

$$Z = \sum_{i=1}^{N_{event}} x_i - \bar{x}$$

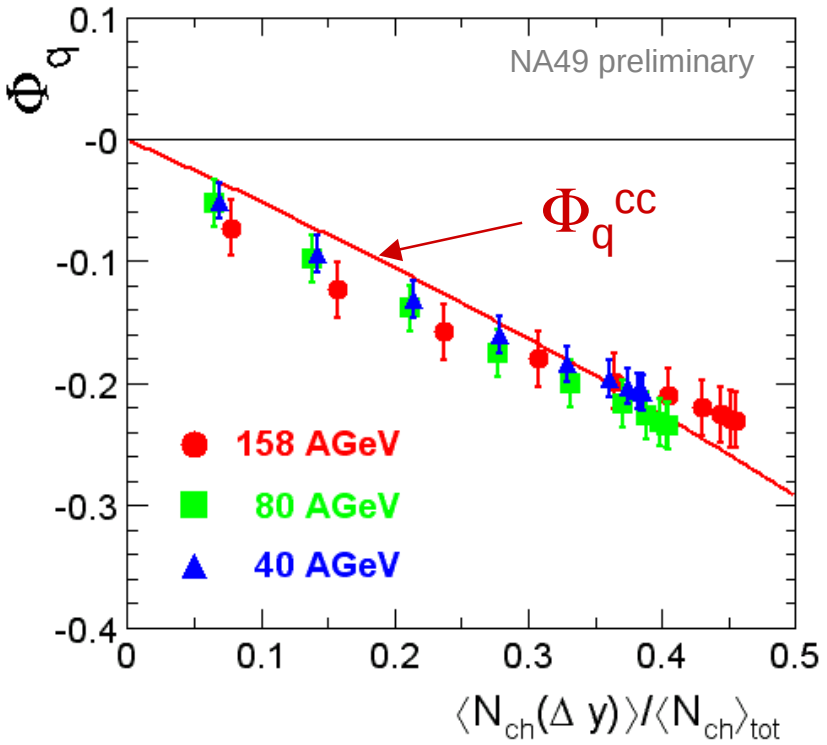
- For charge fluctuations: $x \rightarrow q$
- Extreme cases:

  Φ_q = 0: independent emission

  Φ_q = -1: local charge conservation

- Central Pb+Pb data

  40+80 AGeV: 7%, 158 AGeV: 10%



Global charge Conservation: $\Phi_q^{cc} = \sqrt{1 - \frac{\langle N_{ch} \rangle}{\langle N_{ch} \rangle_{tot}}} - 1$

(for net charge = 0)