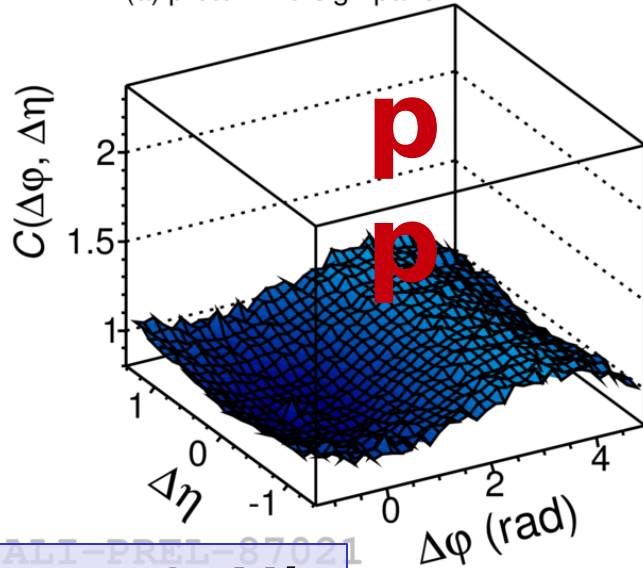
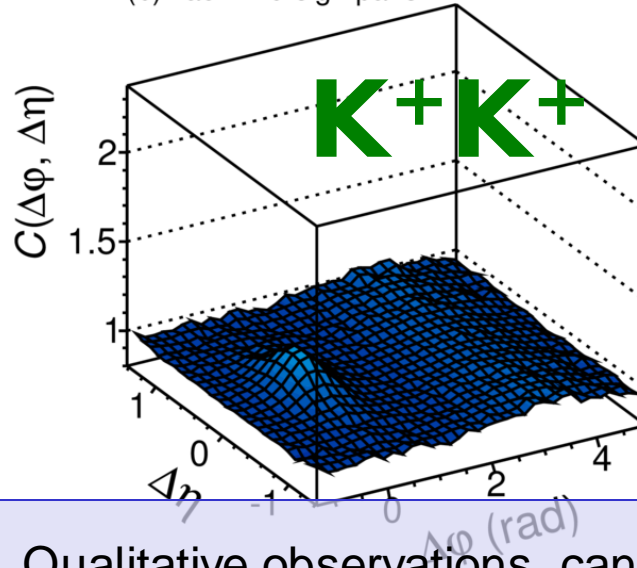


pp @ 7 TeV

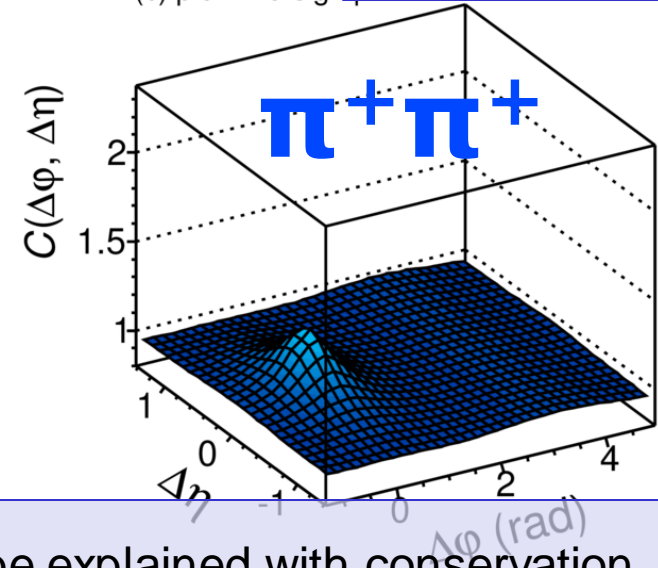
(a) proton like-sign pairs



ALICE Preliminary, pp $\sqrt{s} = 7$ TeV
(b) kaon like-sign pairs



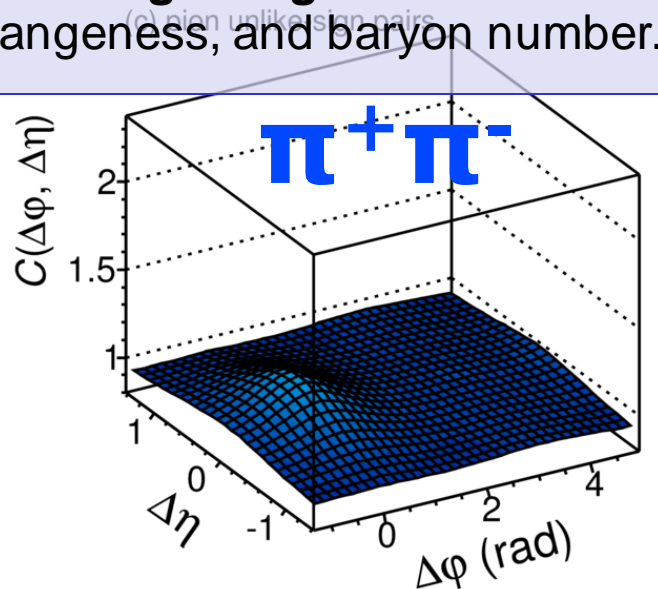
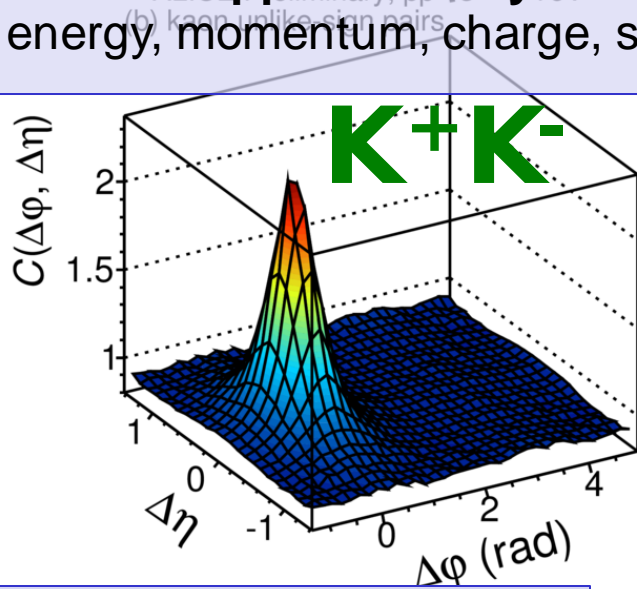
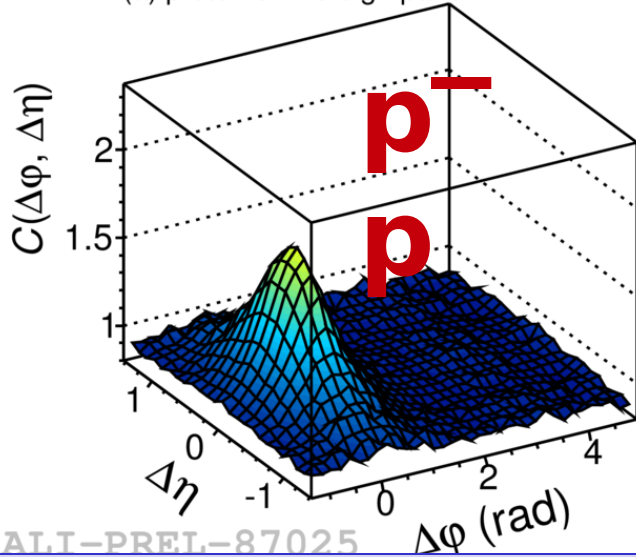
(c) pion like-sign pairs



$p_T < 4$ GeV/c

Qualitative observations can be explained with conservation laws applied locally for each single fragmentation: energy, momentum, charge, strangeness, and baryon number.

(a) proton unlike-sign pairs

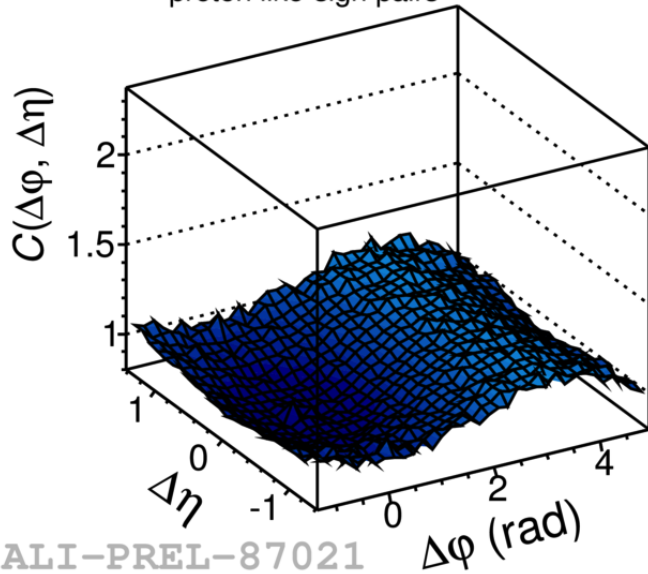


- 1) MJ (for ALICE), WPCF 2014 talk
- 2) Ł. Graczykowski, MJ (for ALICE), Nucl.Phys.A 926 (2014), 205-212

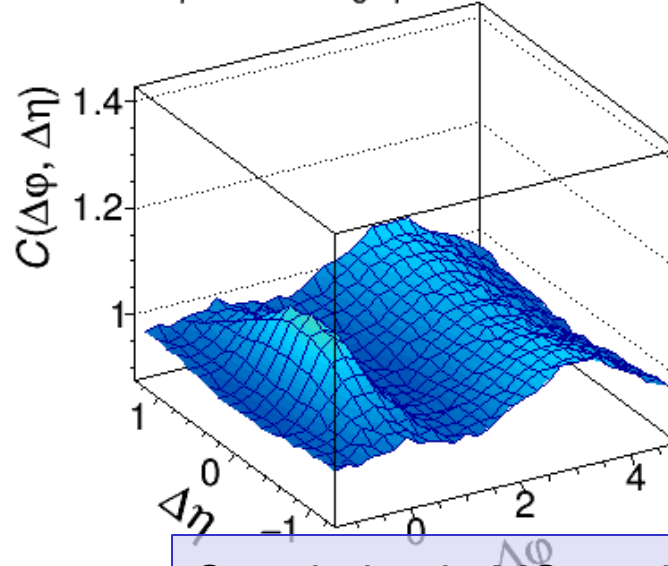
Explaining proton-proton correlations

pp @ 7 TeV

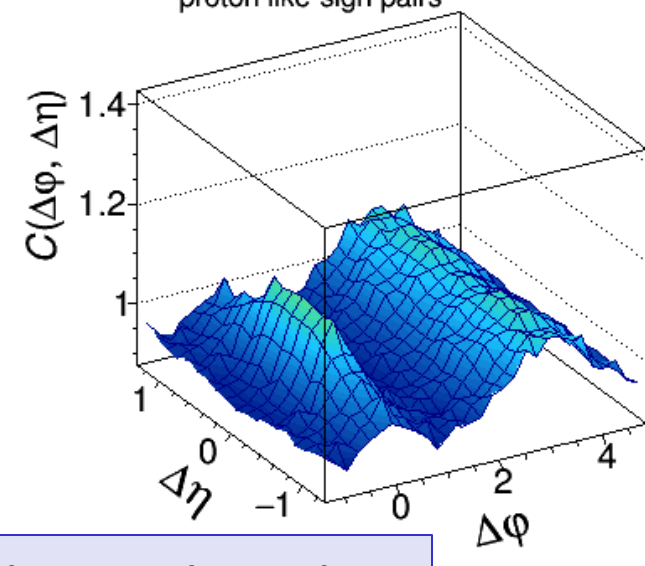
ALICE Preliminary, pp $\sqrt{s} = 7$ TeV
proton like-sign pairs



PYTHIA 6.4 Perugia-2011, pp $\sqrt{s} = 7$ TeV
proton like-sign pairs

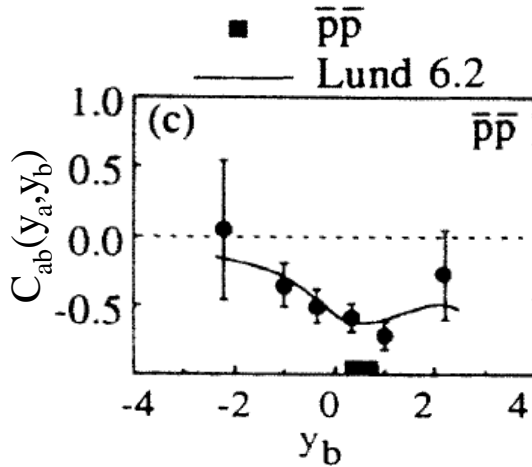


PYTHIA 6.4 Perugia-2011, pp $\sqrt{s} = 7$ TeV
proton like-sign pairs



ALI-PREL-87021

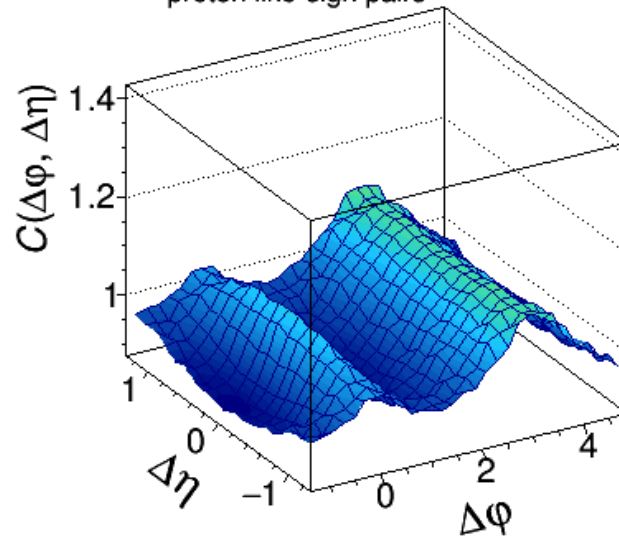
Correlation in MC models opposite to data.



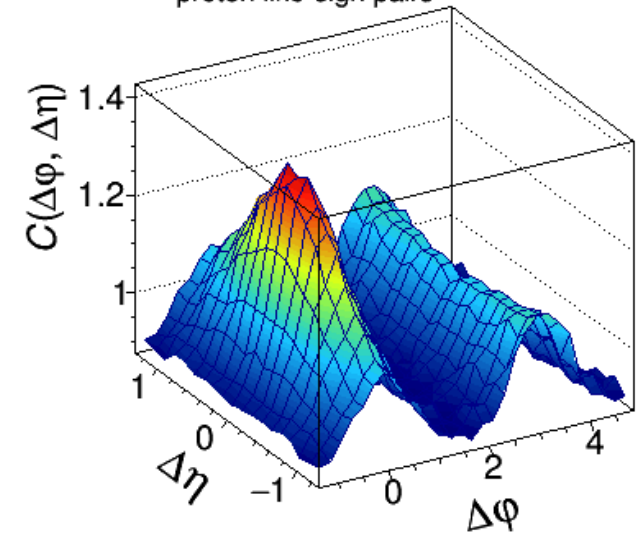
TPC/Two Gamma
Collaboration (H. Aihara et al.),
Phys.Rev.Lett. 57 (1986) 3140

e^+e^- @ $\sqrt{s} = 29$ GeV

PYTHIA 8.210 Monash, pp $\sqrt{s} = 7$ TeV
proton like-sign pairs



PHOJET 1.12, pp $\sqrt{s} = 7$ TeV
proton like-sign pairs



ConservAtion Laws Model (CALM): simple MC

Simple MC:

- Conservation of energy, momentum and all quantum numbers local to the emission from boosted clusters
- Reproduces the standard “minijet” correlation shape with near-side peak and away-side ridge

BUT

- Two-particle baryon-baryon correlation data shows only global energy-momentum conservation features (as if the minijets did not exist?!)
- Yet baryons **are** produced in minijets (see e.g. proton-antiproton correlations)

It seems that production of more than one baryon-antibaryon pair in a single fragmentation is strongly suppressed (!)

