Multiple Interactions in Photoproduction at HERA.

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Multiple Interactions (MI)

Progress since the last talk:

- Change from h1oo 2.6 to the h1oo 3.0
  - dijet sample upgrade straightforward.
  - some problems in the dijet-charm sample had to be solved.
- 2006/07 D* with dijets Data analysis started.

  ✗ MC not yet ready.
- Charged Particle Multiplicity Unfolding process nearly finished (see next slides)

Multiple Interactions (MI)

- Data: 99-00
  - Photoproduction ($Q^2 < 0.01 GeV^2$)
  - $0.3 < y < 0.65$
- DiJet events with: $P_t > 7(6)$ GeV, $|\eta| < 1.5$

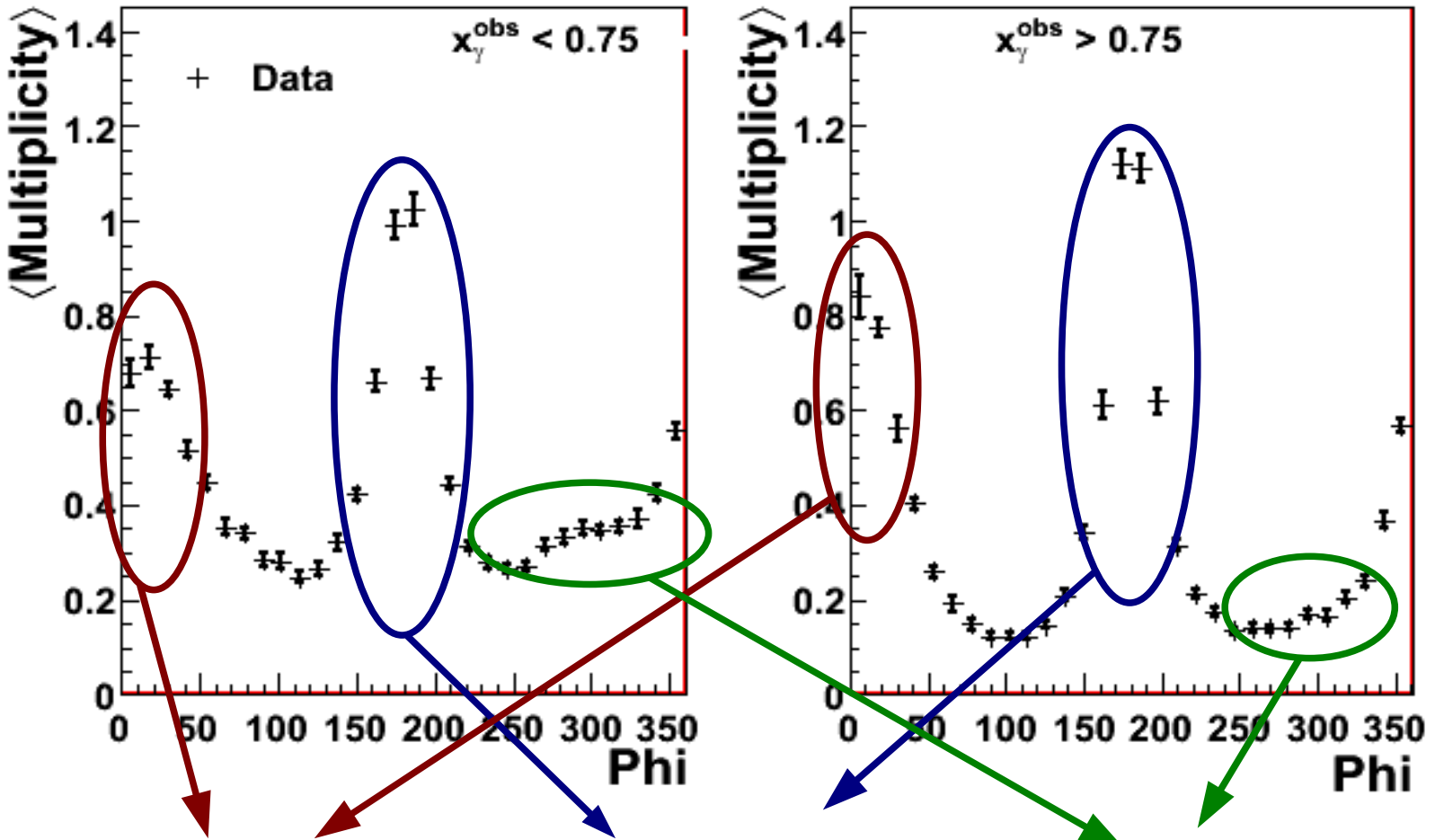
Kt clustering algorithm (pt weighted recom. scheme)

+ We will consider <u>charged</u> particles from the primary vertex and:

  $P_t > 150$ MeV and $|\eta| < 1.5$

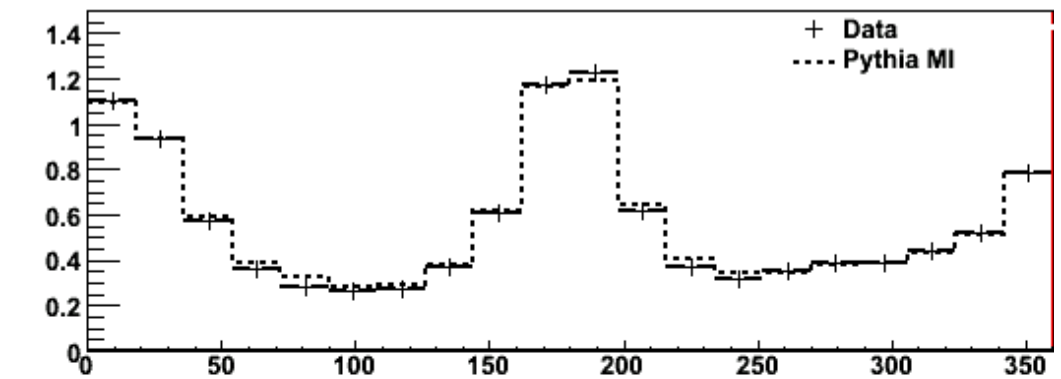
Multiple Interactions (MI)

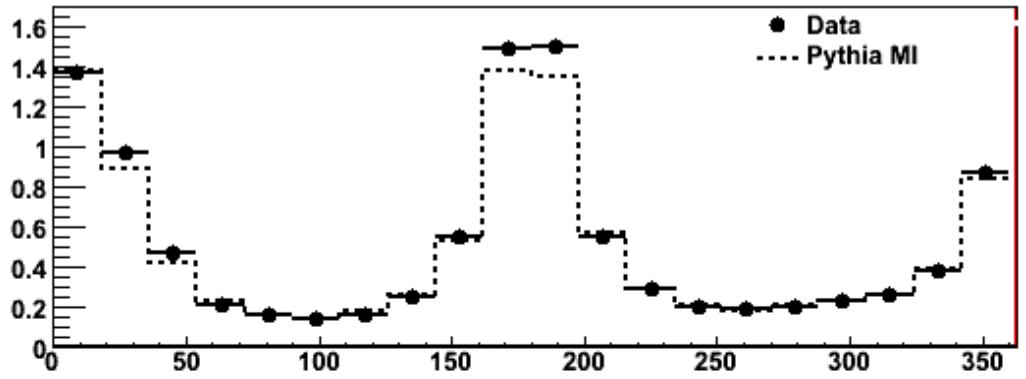
Plot layout:

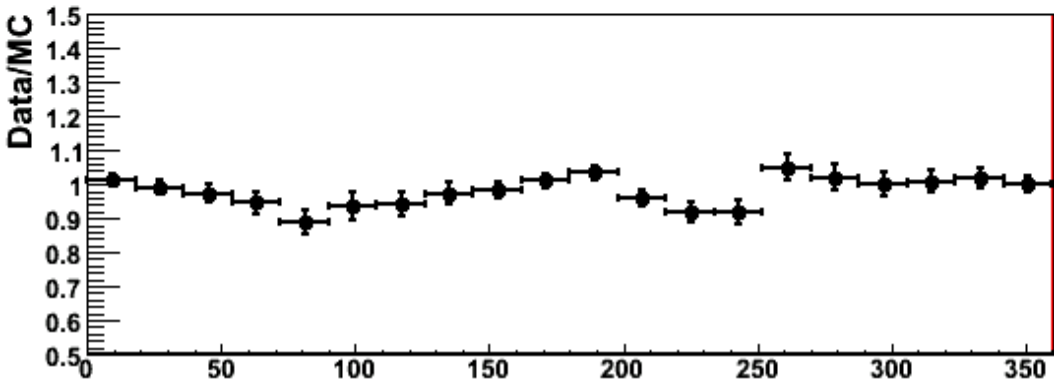


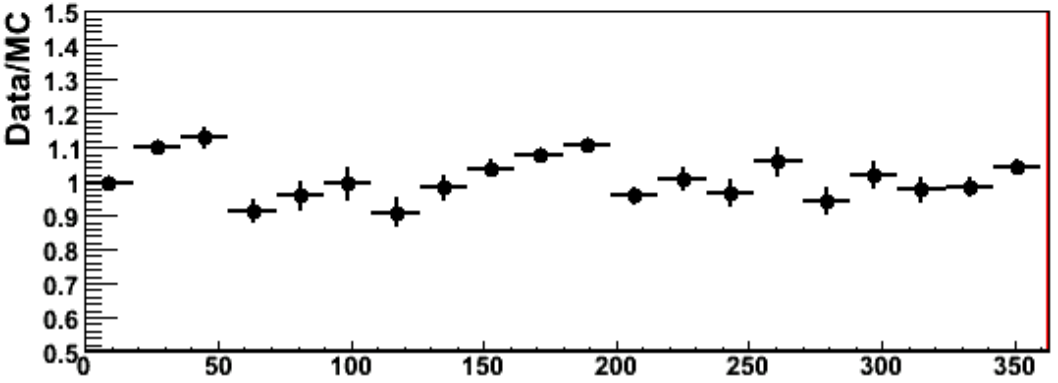
Multiple Interactions (MI)

"Folded" charged multiplicity data in dijet sample







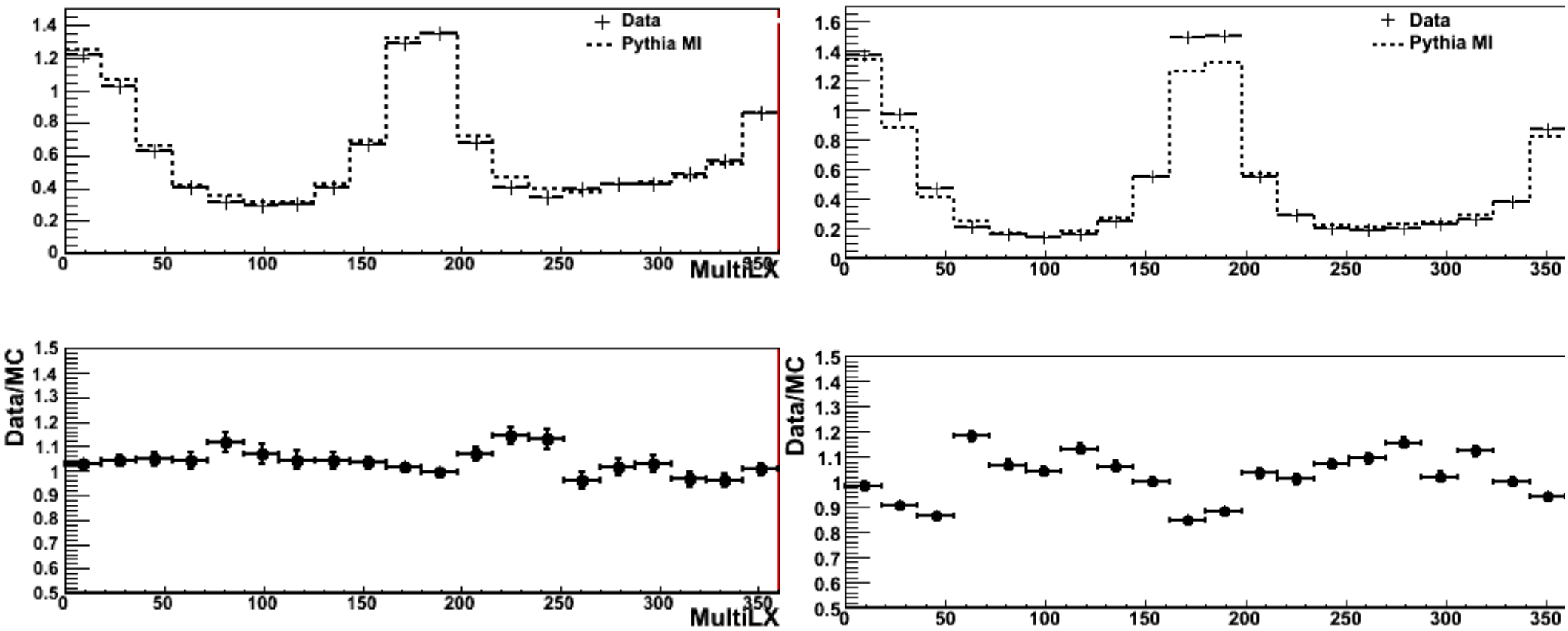


We already saw that Pythia MI describe Data.

We want to have this at hadron level in order to easily compare different MC predictions with Data

Multiple Interactions (MI)

Unfolded charged multiplicity data in dijet sample



G. D´Agostini (Bayesian) method used (see: Nucl. Instr. and Meth. in Phys. Res. A362 (1995) 487 and backup slide)

Multiple Interactions (MI)

Summary:

- Get a D* with dijets Monte Carlo for HERA II.
- Start with 2006/07 dijet analysis (Data + MC)

Multiple Interactions (MI)

The *Smearing Matrix* provides information on how to unfold the data.