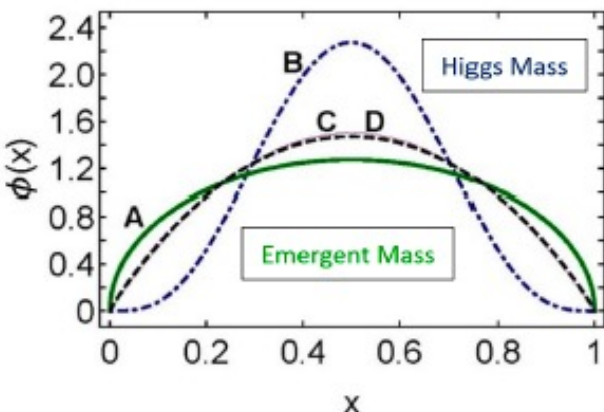
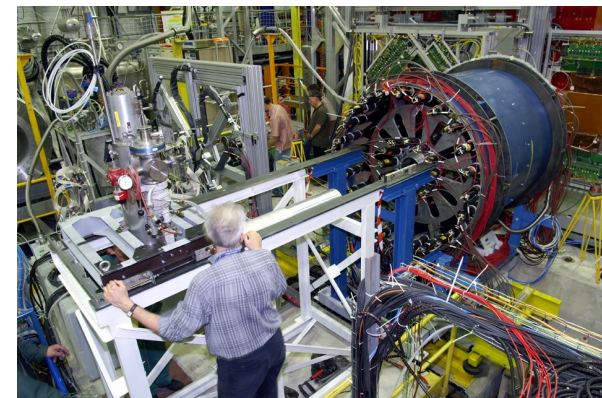


AMBER - New EHM-related ideas: PDA

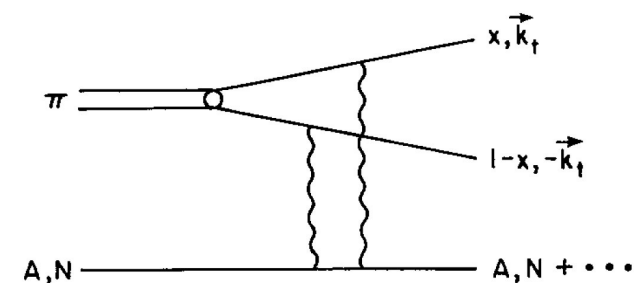


Craig Roberts: Pion and kaon distribution amplitudes (DAs) nearest thing in quantum field theory to a Schrodinger wave function; consequently, fundamental to understanding π and K structure. Modern theory predicts that EHM is expressed in the x -dependence of pion and kaon DAs.

Where x is a fraction of hadron's longitudinal momentum carried by the quark in the imf.

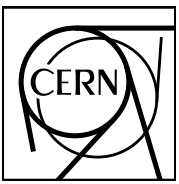
A solid (green) emergent mass generation is dominant (pion);
 B dot-dashed (blue) curve: Higgs mechanism is the primary source of mass generation (C-meson);
 C solid (thin, purple) curve (asymptotic prole, $6x(1-x)$);

Fermilab E791 the only experimental data
 In di-jets production by 500 GeV π^- beam



L.L. Frankfurt, G.A. Miller, and M. Strikman, Phys. Lett. B304, 1 (1993).

AMBER robe: diffractive pion dissociation on a heavy target with very small t' , this is a coherent process where two quarks break apart producing hadron in the final state



Di-jets in AMBER



Thus the main question remains :

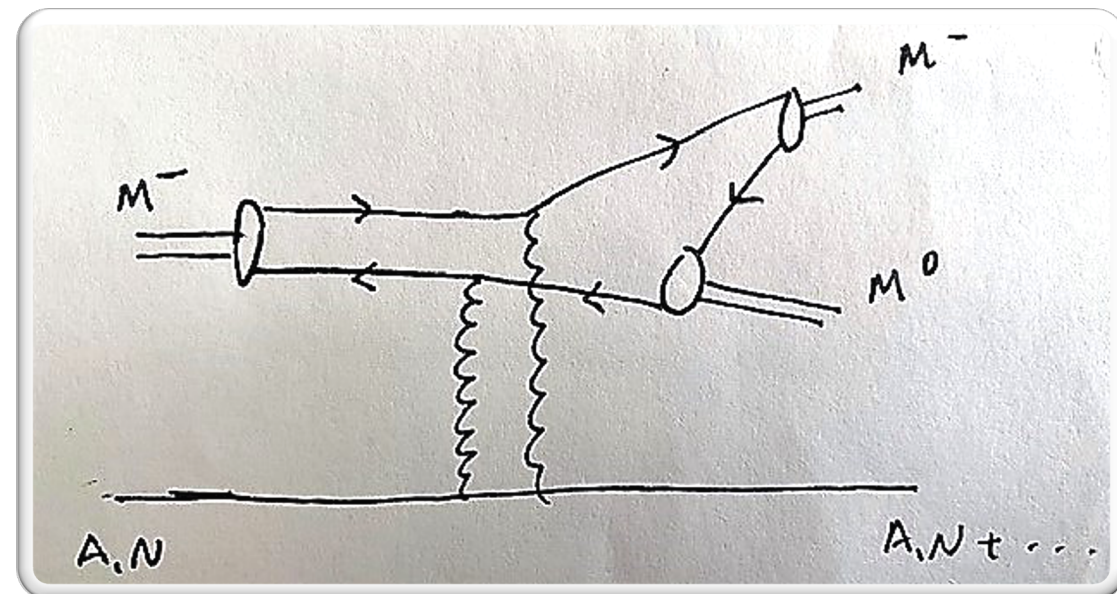
Can we access di-jets regime in AMBER?

What is a signature of di-jet event with 80/190 GeV hadron beam?

Definition of the “jet” in AMBER kinematics

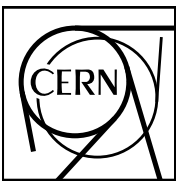


- Can one obtain information on meson DAs via di-meson final states
- 1st guess answer = only momentums of DA
- If the diagram at right is the sort of thing one would look for, then following problems are encountered:
 - Two additional LFWFs \Rightarrow additional $\frac{1}{k_t^8}$ suppression introduced to cross-section
 - Integration over the loop means pointwise information on x-dependence is lost



Questions:

How well we can separate exclusive $\pi\pi^0$ final state in AMBER?
 What would be a statistics after say 3 month of running time
 Phase space coverage?



BACK UP



The only experiment with two jets in the final state which has been done so far is Fermilab experiment E791 (E791 Collaboration, E.M. Aitala et al., EPJ direct C4, 1 (1999)), recorded 2×10^{10} events from interactions of a 500 GeV/c π^- beam with carbon (C) and platinum (Pt) targets. The trigger included a loose requirement on transverse energy deposited in the calorimeters.

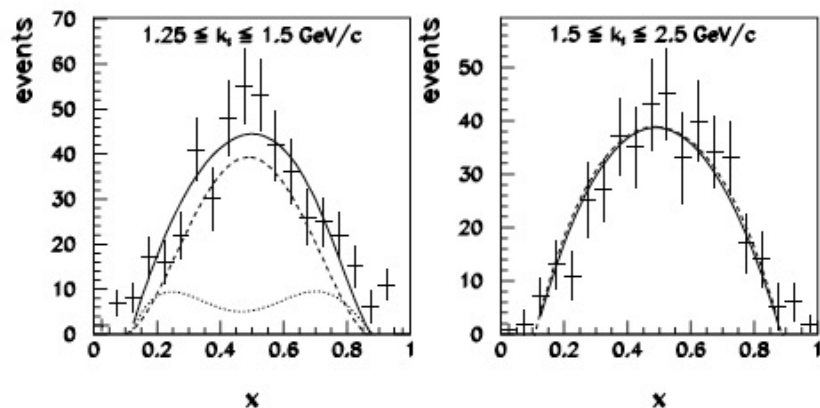


FIG. 3. The x distribution of diffractive di-jets from the platinum target for $1.25 \leq k_t \leq 1.5$ GeV/c (left) and for $1.5 \leq k_t \leq 2.5$ GeV/c (right). The solid line is a fit to a combination of the asymptotic and CZ wave functions. The dashed line shows the contribution from the asymptotic function and the dotted line that of the CZ function.

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Two-jet events were identified analysing by a number of selection criterias, for example all charged particles carried out 90% of beam particle momentum, cut on k_T , angular distributions analysis etc.