The Monte Carlo Event Generator ARIADNE at high Q^2

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RAL Summer School 1999

OUTLINE

- motivations
- the “old” Ariadne
- modifications at high Q^2
- conclusions

MOTIVATIONS

- "old" ARIADNE gives a good overall description of hadronic final states

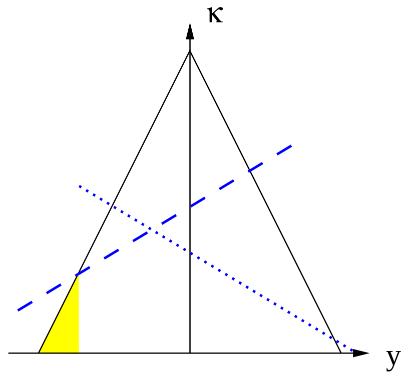
  but

  poor agreement in high Q^2 region

$\Rightarrow$ modifications made in the CDM model

$\Rightarrow$ need for a detailed study of its consequences

“OLD” MODEL IN ARIADNE



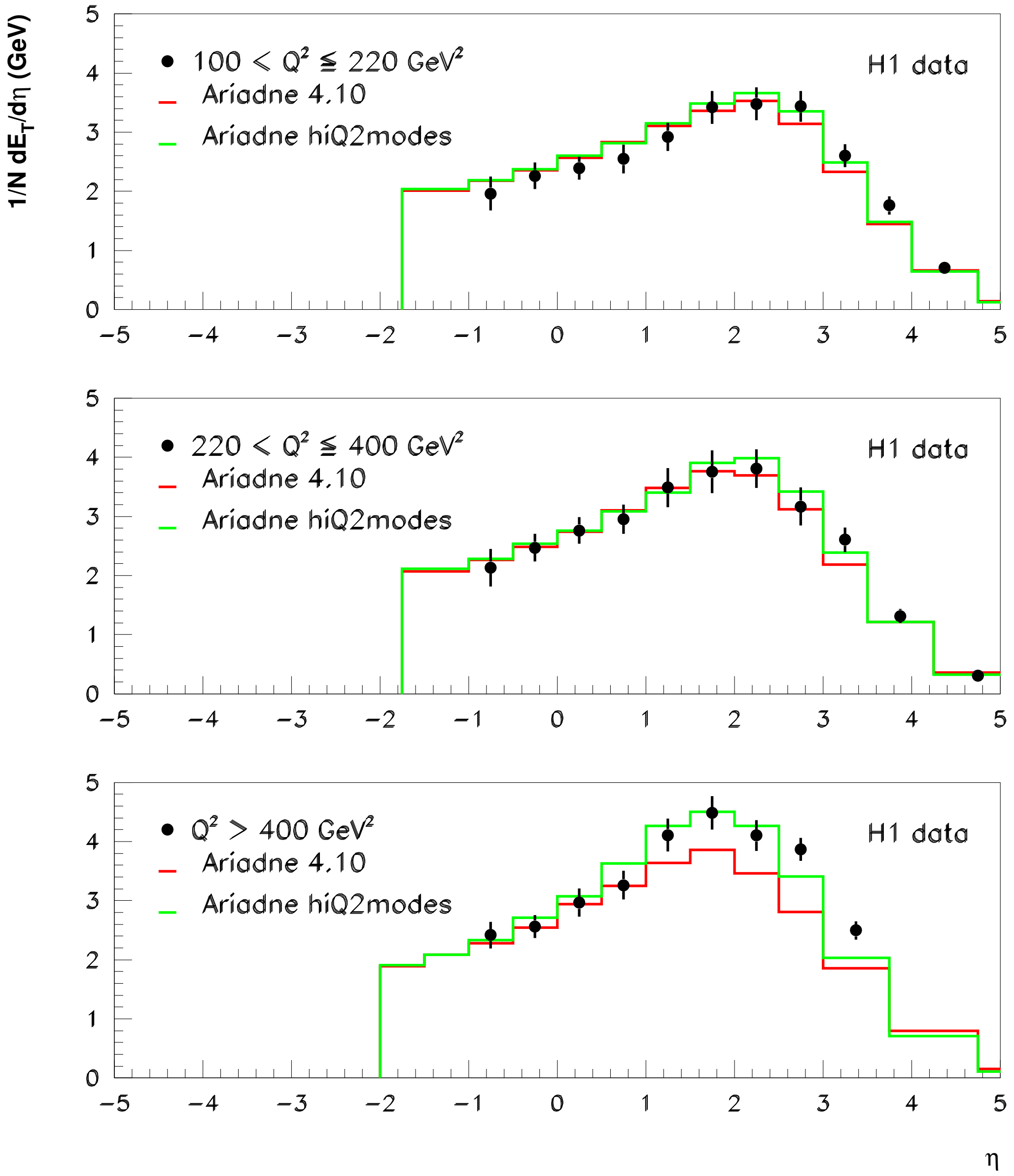
phase space for final state particles in DIS

- proton remnant $\equiv$ extended object
- also the struck quark is considered as extended ...

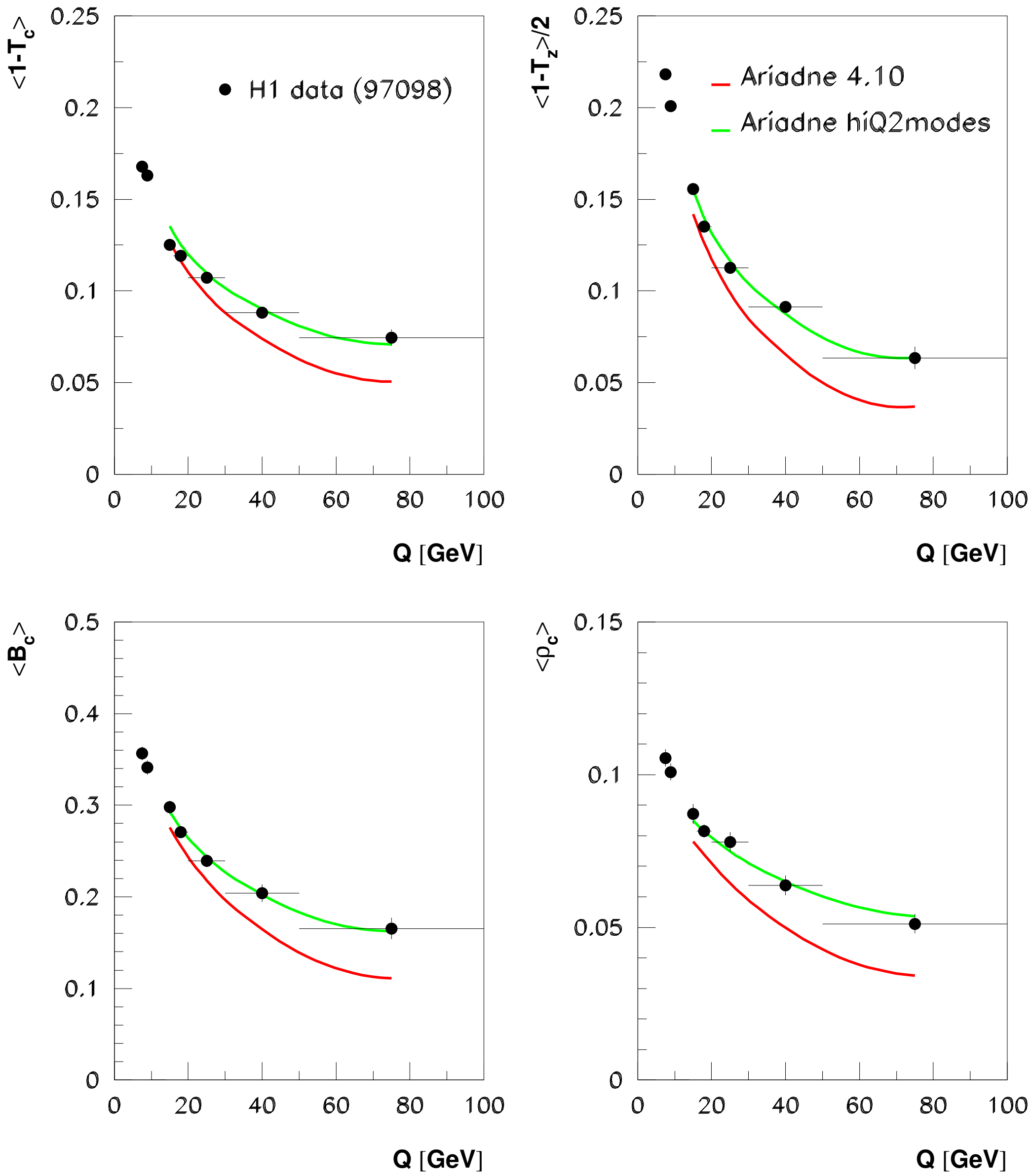
$\Rightarrow$ soft suppression of radiation in the CBF

$\Rightarrow$ difficulties: not enough E_T, ...

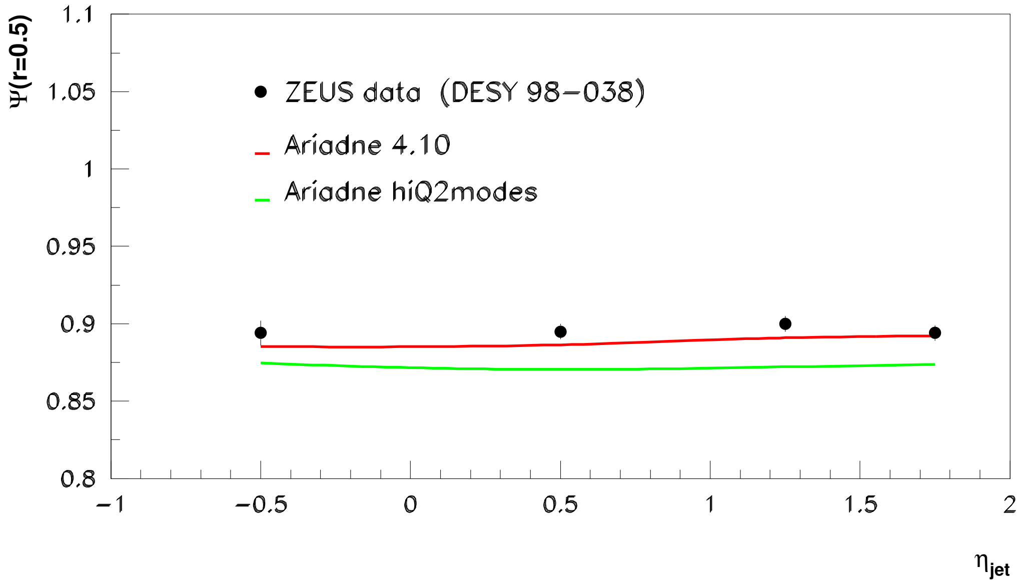
Flows of transverse energy

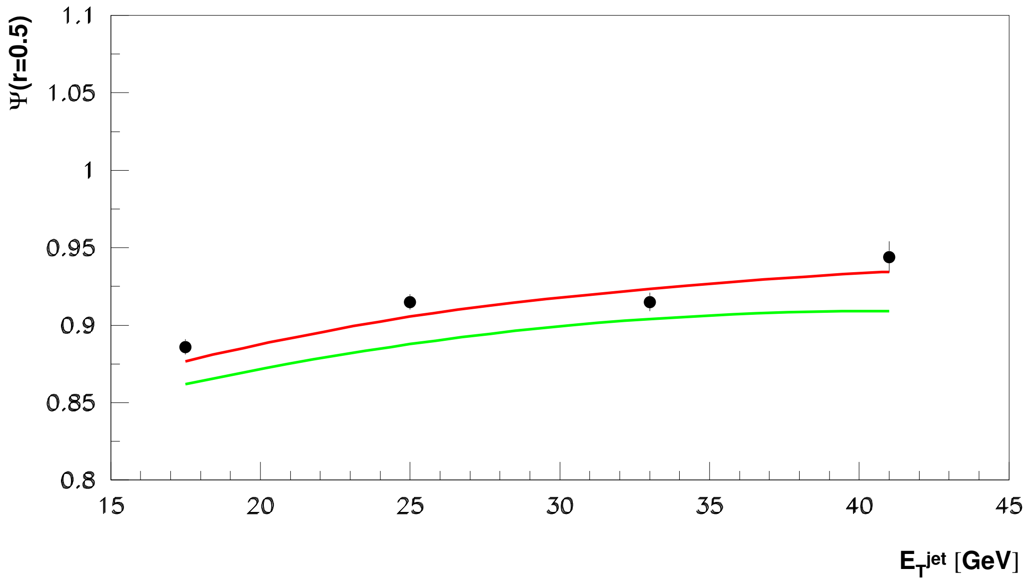


Mean event shape variables

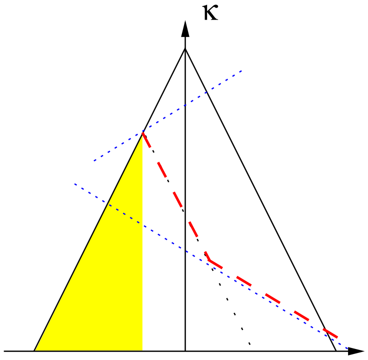


Integrated jet shapes





MODIFICATIONS AT HIGH Q^2

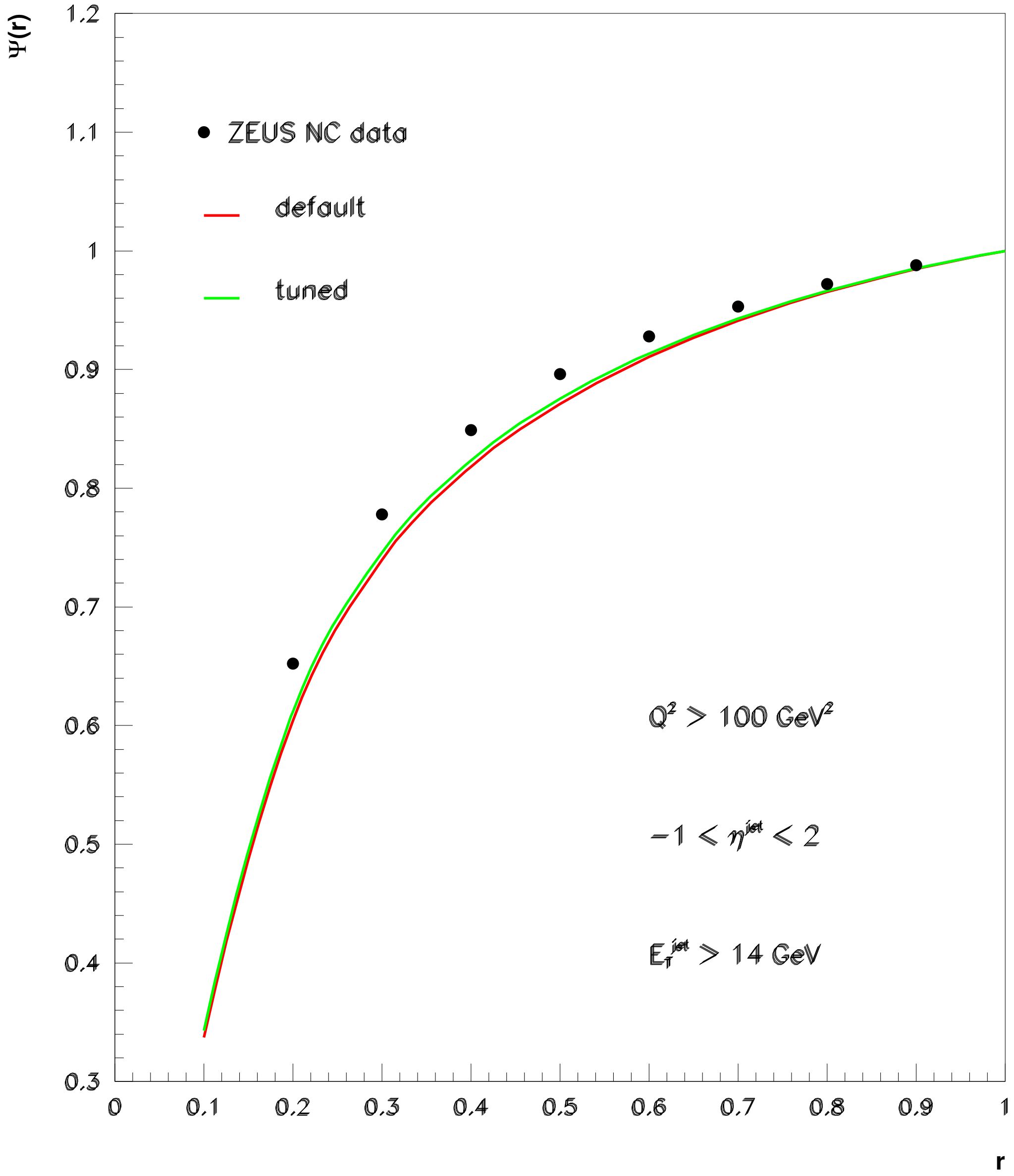


phase space for final state particles in DIS at high Q^2

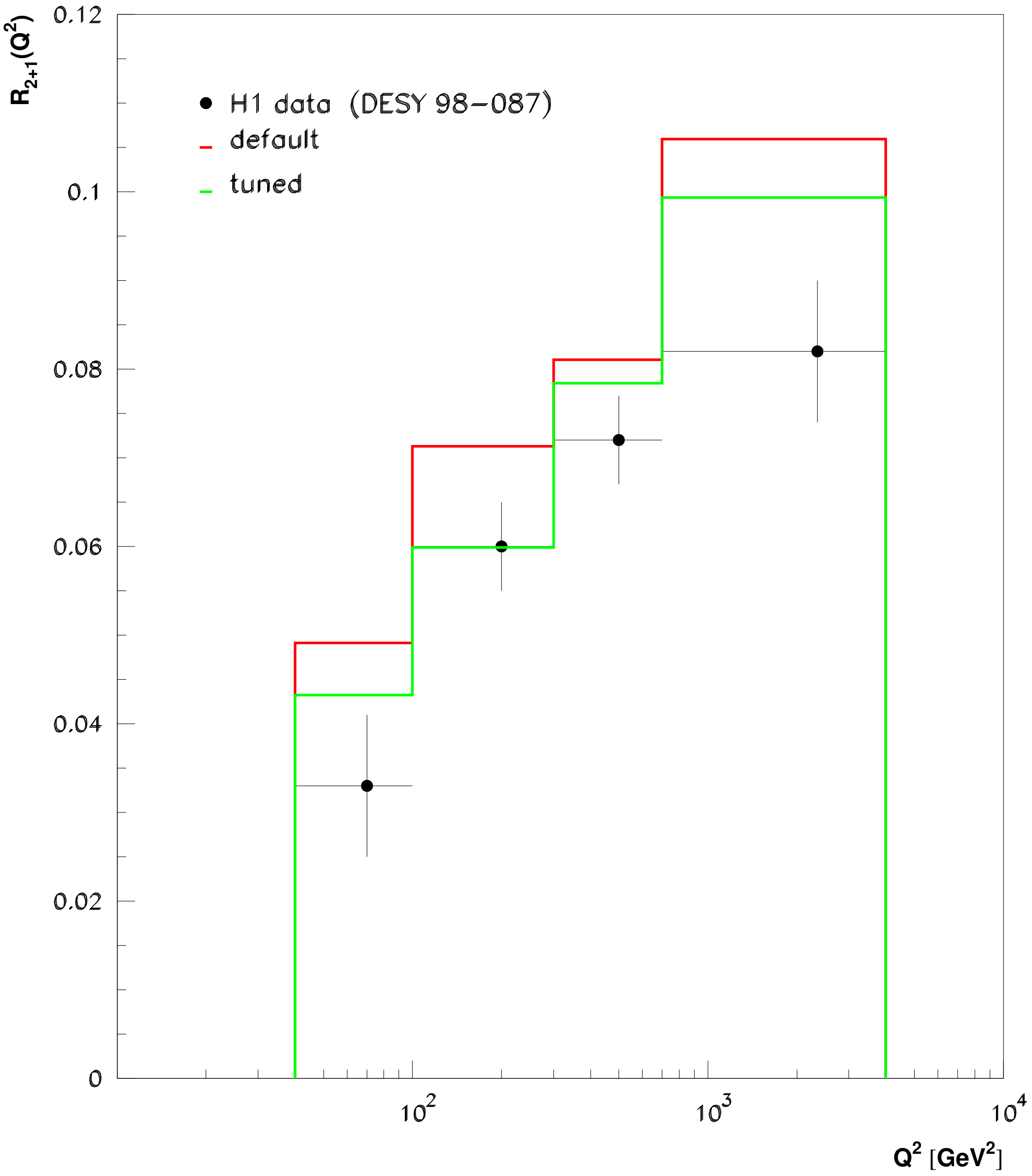
- at high Q^2 the CBF (yellow area) would be cut due to the extension of the proton remnant
- too strong a restriction

$\Rightarrow$ modification of model: extend phase space (red line)

Integrated jet shape



(2+1) jet event rate



CONCLUSIONS

- better description of data at high Q^2

and

- reproduction of data for low Q^2 not spoilt

but

- overall description seems difficult: in particular, problems with jet shapes