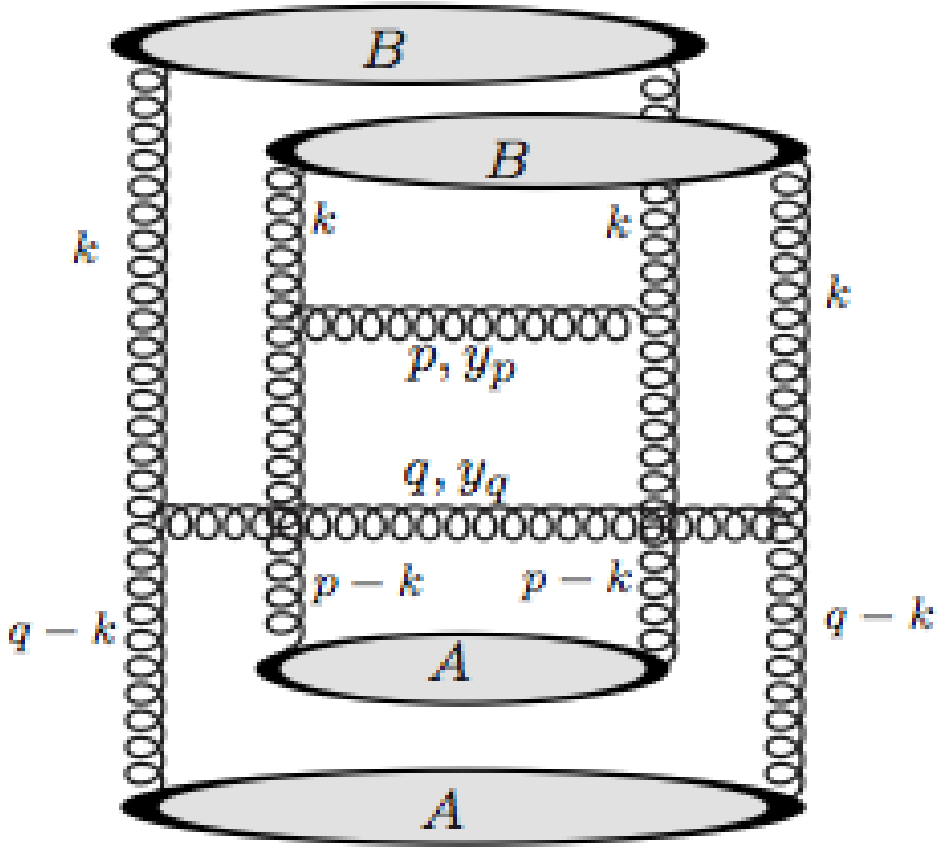
Questions and ideas from MC side on saturation and ridge

- how to understand the ridge ?
- where are multiparton interactions coming from ?
- where is high parton density coming from ?
- where is saturation happening ?
-

Does interference generate correlations ?

- Is angular correlation related to interference of different ladders ?
- Are these then really the relevant diagrams ?
  - How can one include this into a Monte Carlo simulation ?

A. Dumitru et al. The ridge in proton-proton collisions at the LHC
arXiv 1009.5295

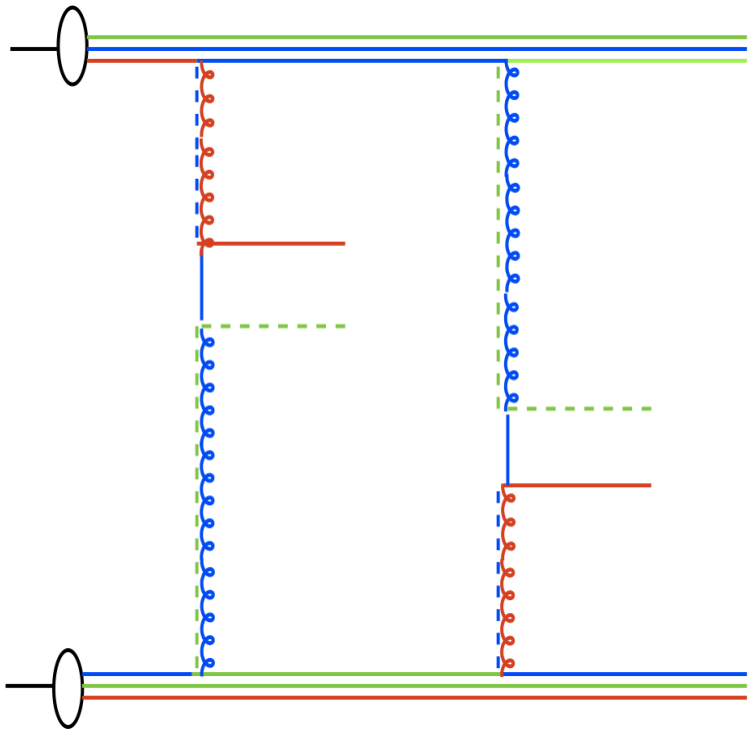


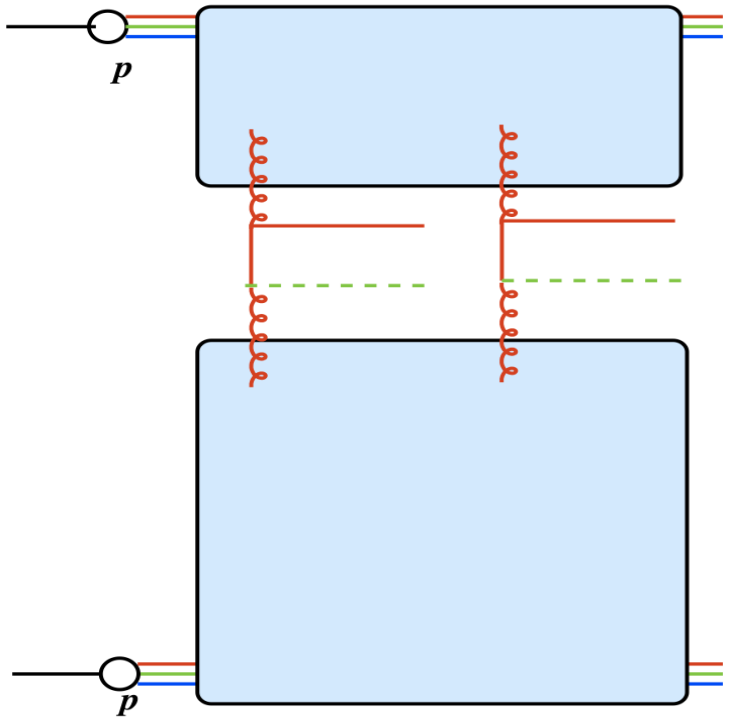
But 2 partons are not enough to generate high multiplicity events

Multiparton interactions

Multiparton interactions occur for high parton densities:

- high at the sarting scale
- high after evolution





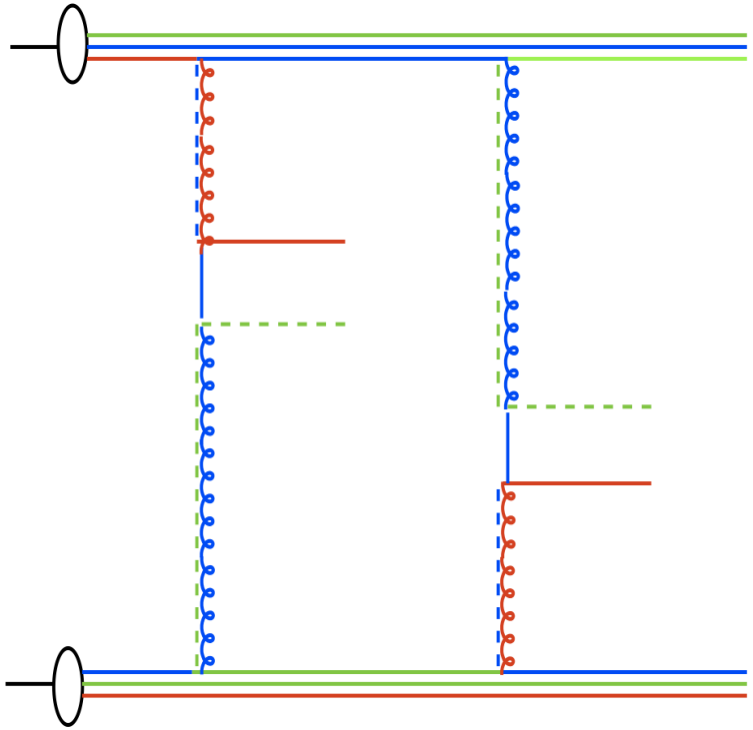
- must happen at very small scales
- no pt generated

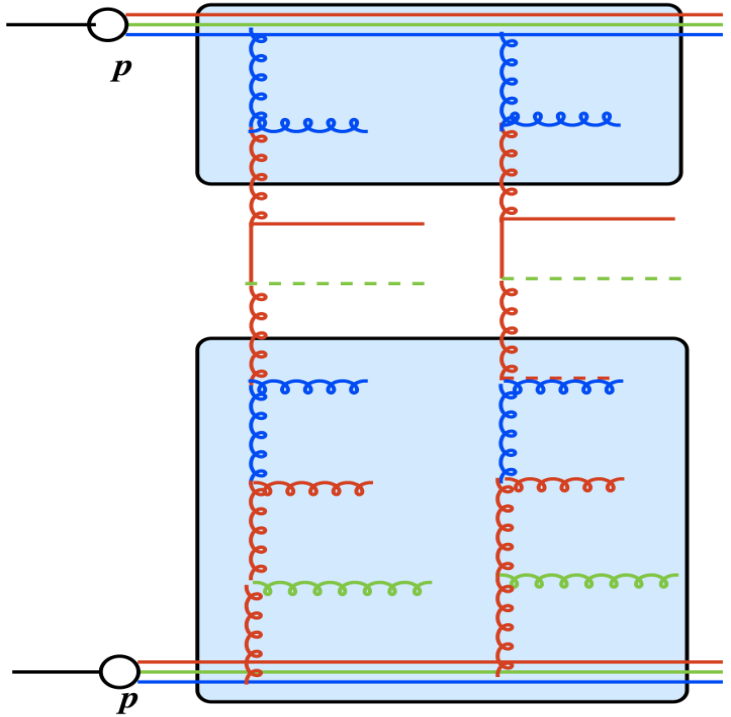
- happens at larger scales
- partons evolve from large to small x

Multiparton interactions

Multiparton interactions occur for high parton densities:

- high at the sarting scale
- high after evolution





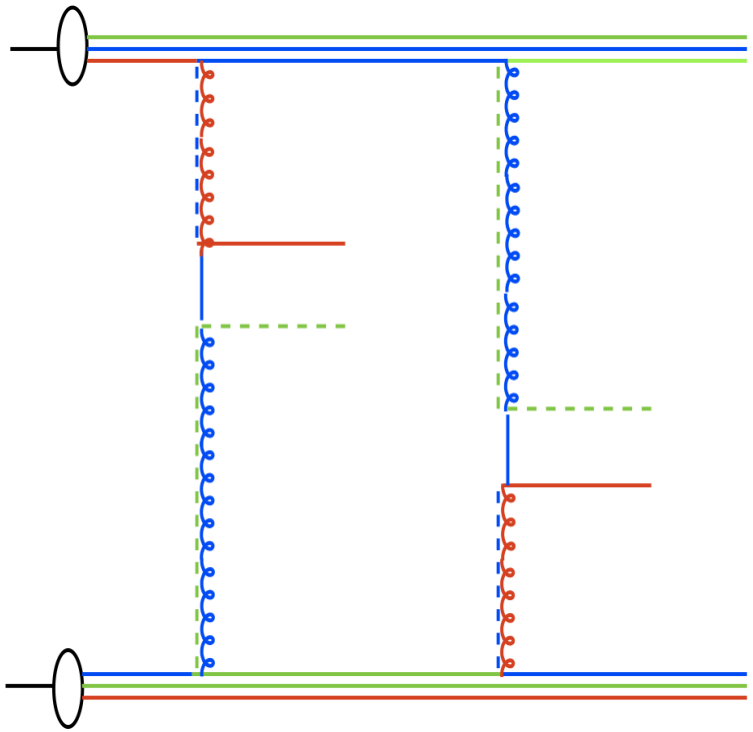
- must happen at very small scales
- no pt generated

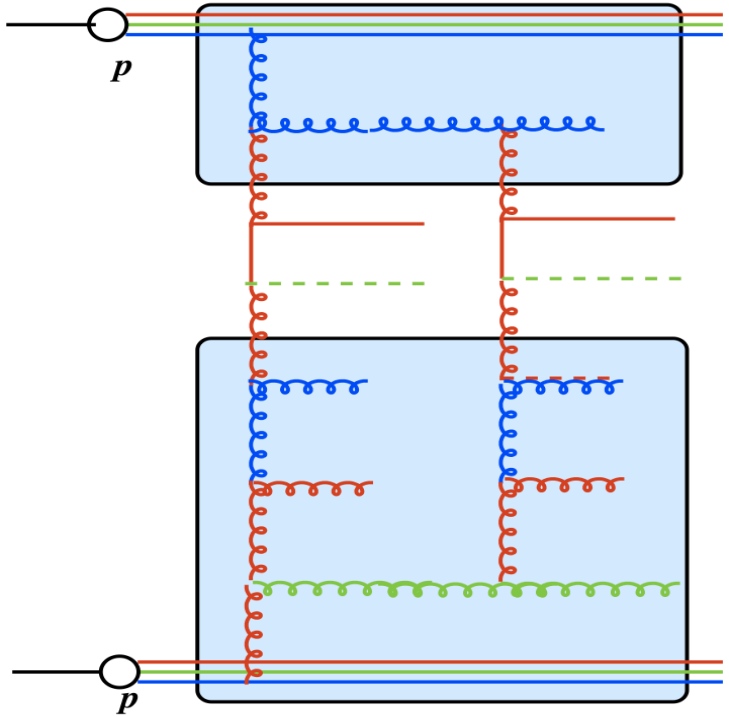
- happens at larger scales
- partons evolve from large to small x

Multiparton interactions

Multiparton interactions occur for high parton densities:

- high at the sarting scale
- high after evolution





- must happen at very small scales
- no pt generated

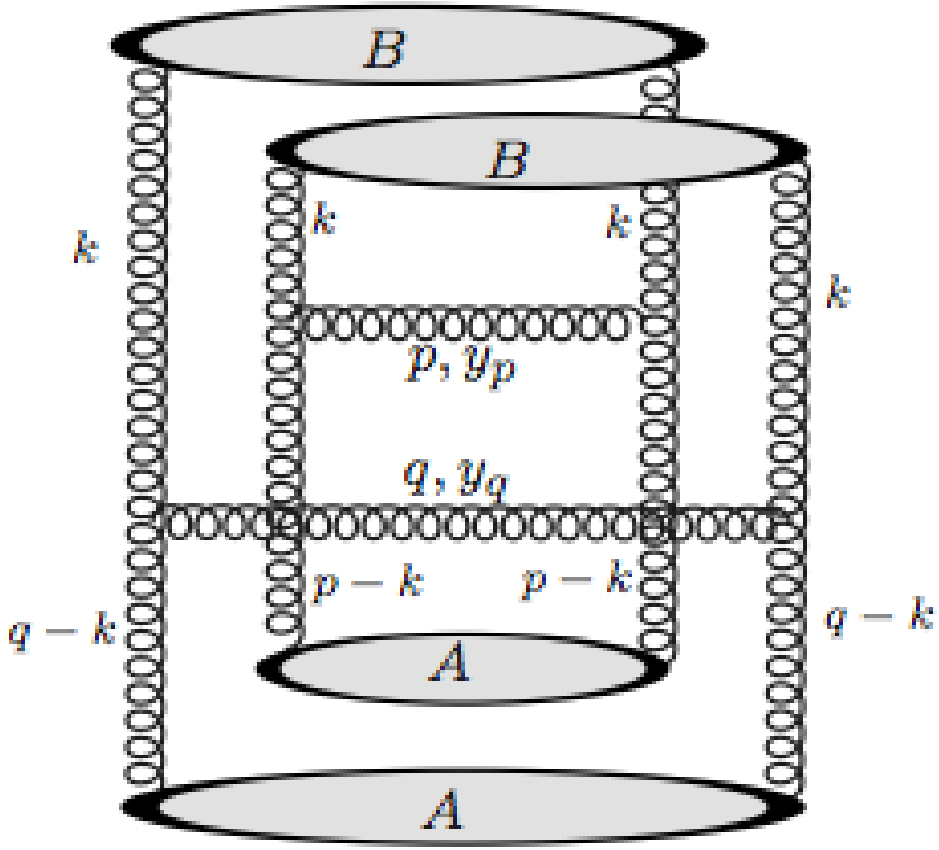
- happens at larger scales
- partons evolve from large to small x

Multiparton interactions

- how to use pdfs with large x for multiparton interactions, which should happen only at smallx ?
- can there be high density already in initial condition ?
- if high density comes via evolution, then multiparton pdfs must take this into account

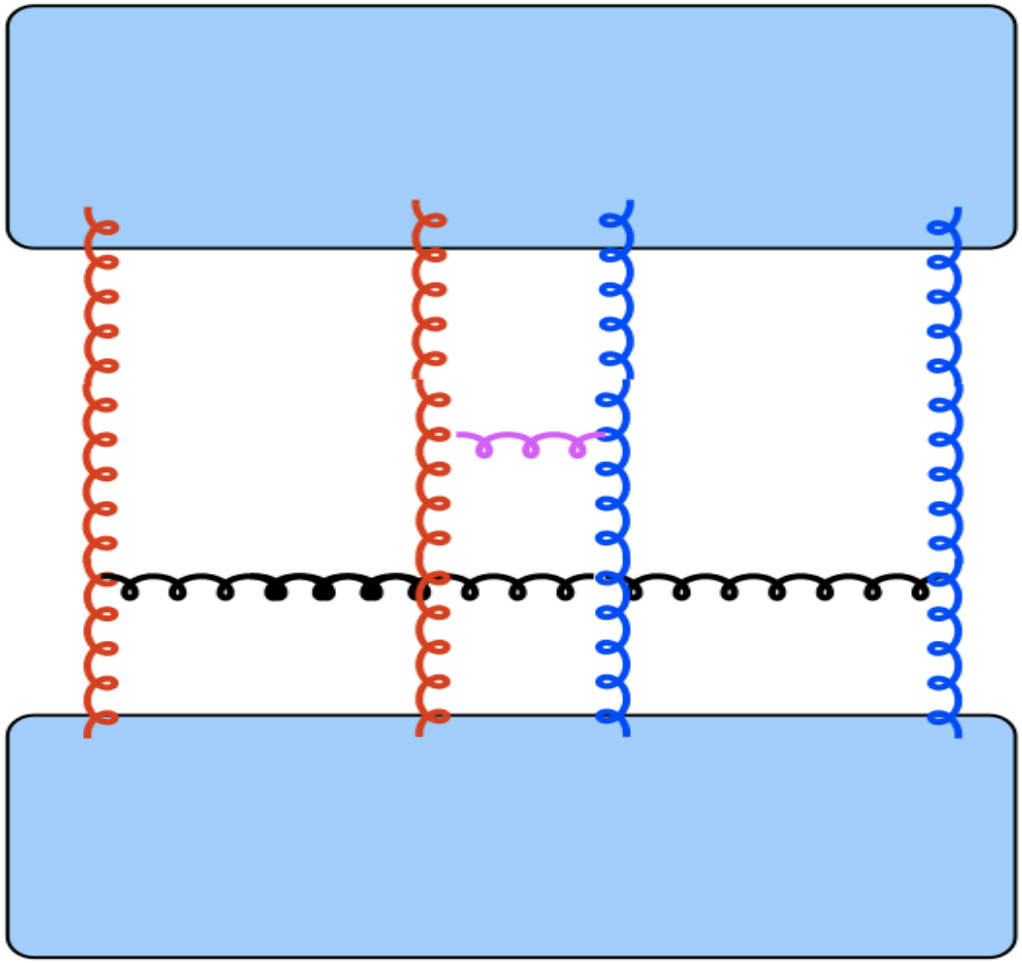
Correlation and the ridge

- how to simulate this ?



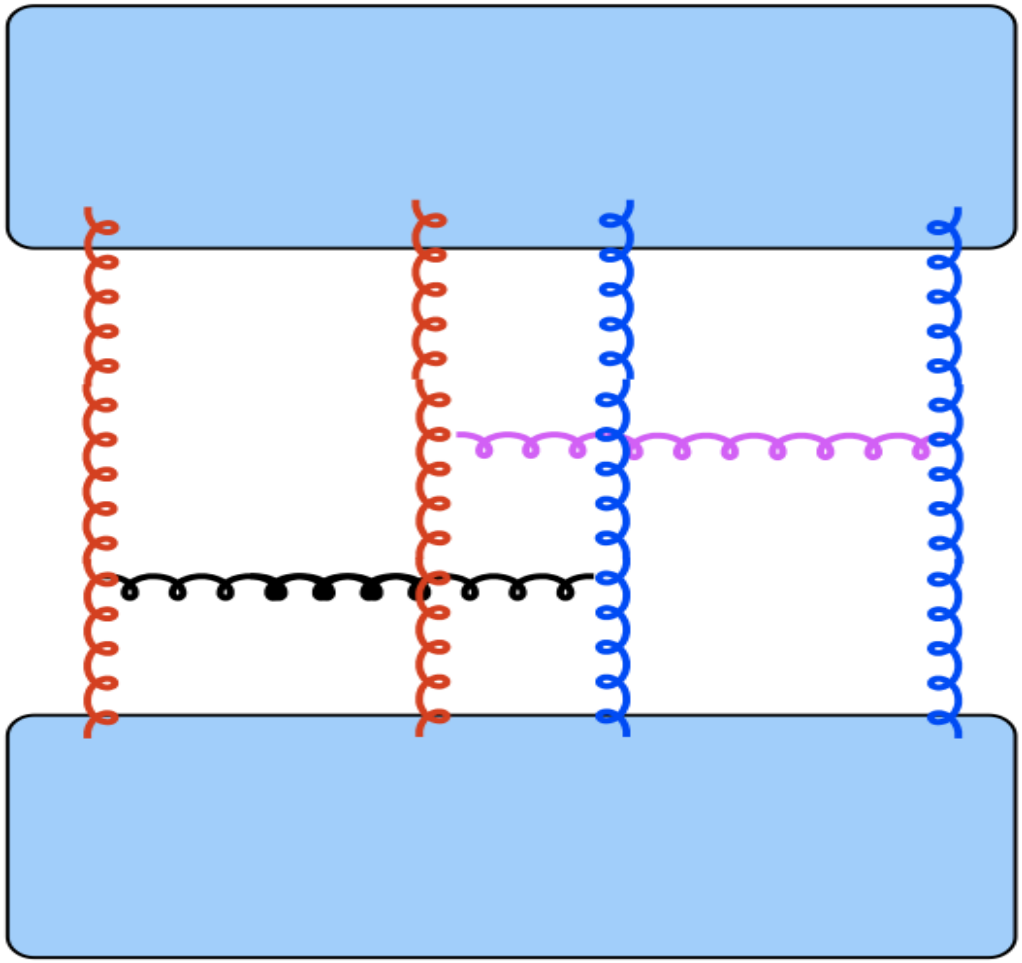
Correlation and the ridge

- how to simulate this ?
  - usual multiparton interaction



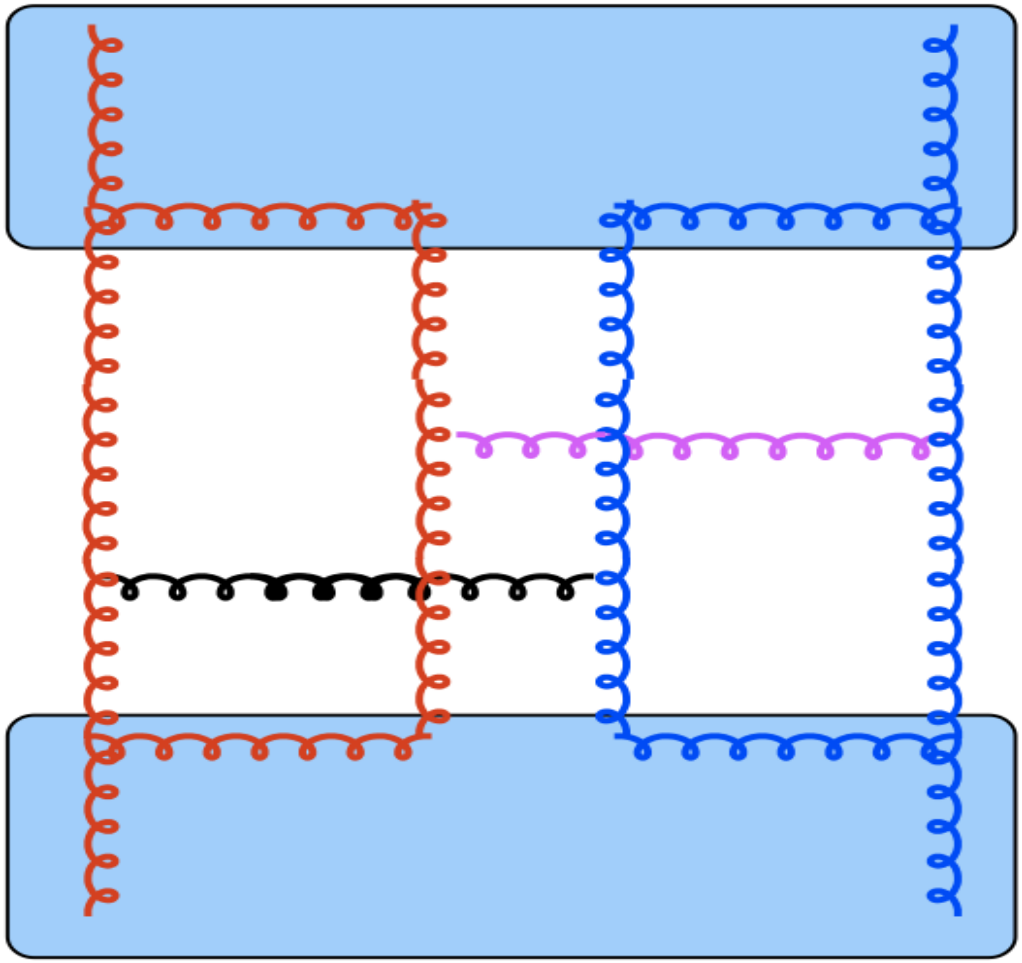
Correlation and the ridge

- how to simulate this ?
  - usual multiparton interaction
    - but what about this ?



Correlation and the ridge

- how to simulate this ?
  - usual multiparton interaction
    - but what about this ?



Could this be a reasonable approach ?