Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

SAGEX
Scattering Amplitudes:
from Geometry to Experiment

ESR Welcome Meeting
Durham, 01/04/19

Anne Spiering

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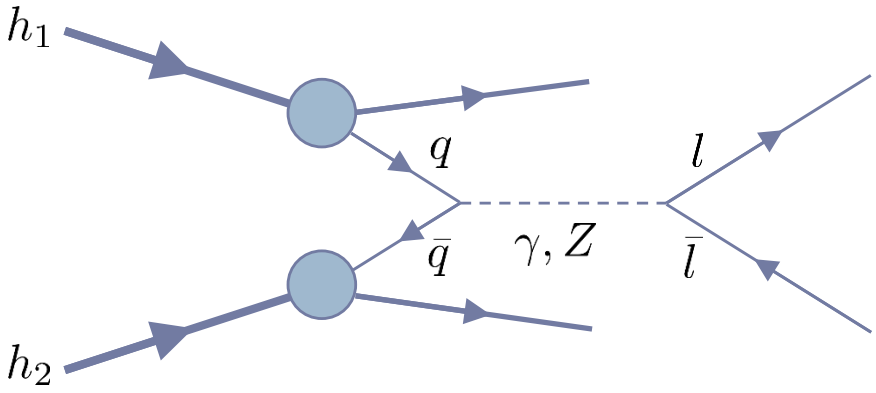
Factorization and Resummation for Massive Quark Effects in Exclusive Drell-Yan

- In collaboration with P. Pietrulewicz, D. Samitz, F. Tackmann



- Factorization theorems: inclusive $\mathrm{d}\sigma = f \otimes f \otimes H$

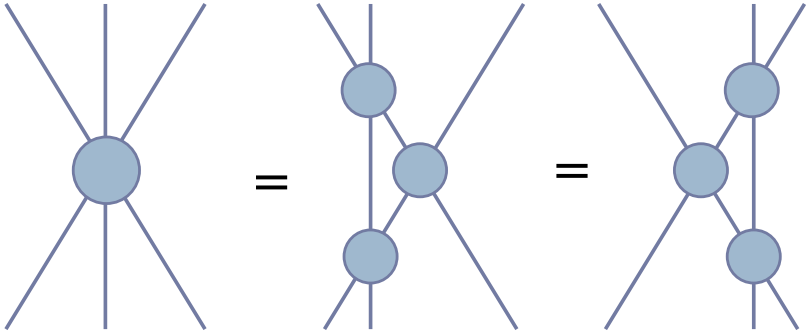
  exclusive $\mathrm{d}\sigma = B \otimes B \otimes H \otimes S \quad B = \mathcal{I} \otimes f$

- $\mathcal{I}_{bg}^{(1)} = \frac{\alpha_s(\mu)}{2\pi} T_F \theta(x) \left[P_{gq}(x) t + 2 m_b^2 \theta(1-x) x^2 \right] \frac{\theta\left(\frac{1-x}{x} t - m_b^2\right)}{t^2}$

[arXiv:1703.09702]

Nonlocal Symmetries and Factorized Scattering

- In collaboration with F. Loebbert (and J. Plefka)
- Yangian: infinite-dimensional non-local symmetry algebra
  mathematical underpinning of many integrable models



- For certain models: Yangian → consistent factorization of scattering

[arXiv:1805.11993]