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Double Parton Distributions off and on the lattice

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The HL-LHC program will be sensitive to significantly smaller effects of BSM physics than probed so far. This implies that the quantitative understanding of non-perturbative Standard Model “backgrounds” has to be improved correspondingly. In this context Multiple Parton Interactions (MPIs) are a major concern. Theory efforts to improve their understanding focus on the simplest case, Double Parton Interactions, which are parameterized by Double Parton Distributions (DPDs) [1]. Jianhui Zhang will present a talk on LaMET evaluations of DPDs [2], see also [3], while I plan to present some general introduction, analytic results [4] and lattice results for DPD moments [5].

[1] M. Diehl, D. Ostermeier and A. Schäfer, JHEP **03** (2012), 089, [arXiv:1111.0910]

[2] J. H. Zhang, [arXiv:2304.12481]

[3] M. Jaarsma, R. Rahn and W. J. Waalewijn, [arXiv:2305.09716]

[4] M. Diehl et al., Eur. Phys. J. C **80** (2020) 468 [arXiv:2001.10428]

[5] G. S. Bali, et al., JHEP **09** (2021), 106 [arXiv:2106.03451]

Author: SCHAEFER, Andreas

Presenter: SCHAEFER, Andreas