

Integrability for Feynman Integrals

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Since the rise of the AdS/CFT duality, integrability has become an important tool to advance our understanding of quantum field theory beyond two dimensions. One of the most challenging tasks in quantum field theory is still the evaluation of higher loop Feynman integrals. In this talk we review how large families of individual Feynman integrals inherit an infinite dimensional Yangian symmetry from the planar AdS/CFT correspondence. Surprisingly, this symmetry also extends to massive integrals, which suggests to further search for integrability in massive instances of AdS/CFT. We demonstrate how the Yangian can be used to bootstrap Feynman integrals in various spacetime dimensions from scratch. For the example of fishnet integrals in two dimensions this leads to a curious interplay between algebra and geometry.