Contribution ID: **64** Type: **not specified**

Challenges of the large moment method

Tuesday 16 April 2024 17:30 (30 minutes)

The large moment methods is a powerful tool to produce many coefficients of power series solutions of coupled systems of linear differential equations. This method with all its variants relies on the crucial observation that the coefficients can be described by (coupled systems) of linear recurrences. In this talk we will discuss various algorithmic challenges (uncoupling of the underlying system, parallel computing, memory issues) in order to calculate thousands of such coefficients. Given this number of coefficients (say 8K), one can produce, e.g., linear recurrences and differential equations of the underlying physical problem for further analysis. We will illustrate these considerations by concrete examples coming from massive 3-loop form factors.

Primary authors: FREITAS, Abilio de (None); SCHNEIDER, Carsten (RISC, Johnnes Kepler University Linz); BLUEMLEIN, Johannes (Z_ZPPT (Zeuthen Particle PhysicsTheory)); MARQUARD, Peter (DESY)

Presenter: SCHNEIDER, Carsten (RISC, Johnnes Kepler University Linz)

Session Classification: Parallel 3

Track Classification: Tools