

A new method for the reconstruction of rational functions

Tuesday 16 April 2024 14:30 (30 minutes)

In this talk, I present a new method for the reconstruction of rational functions through finite-field sampling that can significantly reduce the number of samples required. The method works by exploiting all the independent linear relations among target functions.

Subsequently, the explicit solutions of the functions can be efficiently obtained by solving the linear system. As a first application, I utilize the method to address various examples within the context of Feynman integrals reduction. These examples demonstrate that the method can substantially improve the computational efficiency, making it useful for future computations in particle physics.

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Session Classification: Parallel 3