Contribution ID: **61**   Type: **not specified**

Rings: a library for asymptotically fast commutative algebra

Sunday, 29 July 2018 14:00 (30 minutes)

Computer algebra and in particular computational commutative algebra (along with algebraic number theory and algebraic geometry) is a quite important ingredient of practical computations in high energy physics. Importance of fast algebraic methods is especially manifested when e.g. considering physical processes at modern colliders within (N*)NLO accuracy: methods such as rational function arithmetic, solving (non-)linear systems of equations, Groebner bases etc. are essential parts of many computational pipelines often become a "bottle-neck" when doing practical calculations. The talk is devoted to the Rings library, which implements the most part of basic asymptotically fast algorithms in the fields of commutative algebra, number theory and algebraic geometry. Specific attention will be paid to the implementational aspects, benchmarks and applications of the library in typical computations in HEP.

Primary author: Dr POSLAVSKY, Stanislav (Institute for High Energy Physics NRC Kurchatov Institute)

Presenter: Dr POSLAVSKY, Stanislav (Institute for High Energy Physics NRC Kurchatov Institute)

Session Classification: CALC2018 Workshop