Contribution ID: **22**   Type: **not specified**

Satisfiability modulo theories solvers and particle physics

Wednesday, September 25, 2024 1:00 PM (25 minutes)

The field of Satisfiability Modulo Theories (SMT) focuses on techniques for determining the satisfiability of first-order logic formulas within formal theories. Despite its relatively short existence of approximately 20 years, SMT solvers have shown remarkable capabilities, combining expressive power with practical efficiency. They find successful applications across various research and industry domains, though their potential remains largely unexplored in particle physics. In this talk I will explore the fundamental principles of SMT solving and demonstrate its practical utility based on novel approach to perform the multiplet decomposition of the color structure of QCD processes. The talk is intended for everybody who encounters hard-to-solve combinatorial problems: SMT solvers represent a mature, industrial-grade solving technology that may offer a straightforward solution to your problem with minimal effort required on your part.

Author: CHARGEISHVILI, Bakar (KIT)

Presenter: CHARGEISHVILI, Bakar (KIT)

Session Classification: Young Scientist Talks