Contribution ID: **214** Type: **Parallel Talk**

Higher-Order Calculations of Anomalous Dimensions at Infrared Fixed Points in Gauge Theories and Studies of Renormalization-Group Behavior of Some Scalar Field Theories

Monday, 31 July 2023 15:10 (20 minutes)

Speaker: Prof. Robert Shrock

Institution: Stony Brook University

Title: Higher-Order Calculations of Anomalous Dimensions at Infrared Fixed Points in Gauge Theories and Studies of Renormalization-Group Behavior of Some Scalar Field Theories

Abstract

We discuss higher-order calculations of anomalous dimensions of operators at an infrared fixed point in asymptotically free gauge theories with various fermion contents and compare with recent results from lattice simulations. This work is in collaboration with T. Ryttov. If time permits, we will also report on higher-order studies of the beta functions in O(N) ϕ_4^4 and ϕ_3^6 theories [R. Shrock, PRD 107, 056018 (2023); PRD 107, 096009 (2023)].

Topical area

Particle Physics Beyond the Standard Model

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Session Classification: Particle Physics Beyond the Standard Model