Contribution ID: **79** Type: **not specified**

Infrared structure of N=4 SYM and Leading trancendentality principle in gauge theory

Tuesday 10 September 2019 11:30 (25 minutes)

In this talk, we present a detailed study on the infrared structure of N=4 SYM and its connection to QCD. Calculation of collinear splitting functions helps to understand the structure and thus one can get infrared safe cross sections. We also demonstrate the factorization property that soft plus virtual part of the cross section satisfies and through factorization, we calculate soft distribution function up to third order in perturbation theory. We show that the soft distribution function is process independent that includes operators as well as external legs unlike QCD. In addition to this we analyse our findings against the known results in QCD through principle of maximum transcendentality and we extend our analysis further for the case of three point form factors involving several gauge invariant operators.

Authors: Mr CHAKRABORTY, Amlan (The Institute of Mathematical Sciences, HBNI, Taramani, Chennai-600113, India); Dr DHANI, Prasanna K (INFN, Sezione di Firenze, I-50019 Sesto Fiorentino, Florence, Italy); Dr BANERJEE, Pulak (Paul Scherrer Institut, Forschungsstrasse 111, CH-5232 Villigen PSI, Switzerland); Prof. RAVINDRAN, Vajravelu (The Institute of Mathematical Sciences, HBNI, Taramani, Chennai 600113, India); Dr AHMED, Taushif (Max-Planck-Institut fur Physik, Werner-Heisenberg-Institut, 80805 Munchen, Germany); Dr SETH, Satyajit (nstitute for Particle Physics Phenomenology, Department of Physics, University of Durham,Durham, DH1 3LE, UK)

Presenter: Mr CHAKRABORTY, Amlan (The Institute of Mathematical Sciences, HBNI, Taramani, Chennai-600113, India)

Session Classification: Tuesday Morning A