

Resurgence and Picard-Lefschetz theory in Quantum Field Theory

Thursday, 19 December 2019 11:30 (30 minutes)

Finding a non-perturbative formulation of Quantum Field Theory (QFT) is an important outstanding problem in physics and mathematics. In mathematics it is needed to put QFT on rigorous footing. In physics it is needed to explain many phenomena observed in nature, particularly at strong coupling, for example the confinement of quarks. Resurgence and Picard-Lefschetz theory are tools that provide a way of calculating non-perturbative contributions from perturbative ones, and thus look like a promising route to unravelling some of the mysteries of non-perturbative QFT. Resurgence does this through analysing asymptotic series. Picard-Lefschetz gives a complementing picture from a path-integral perspective. I will give an introductory talk to one or both of these topics, with some basic examples, to give a flavour of how they work.

Primary author: Mr GLASS, Philip (Durham University)

Presenter: Mr GLASS, Philip (Durham University)

Session Classification: Parallel Session 4