



istanbul matematiksel bilimler merkezi
istanbul center for mathematical sciences

MATHEMATICAL AND THEORETICAL PHYSICS AFTERNOONS

Friday, 22 November 2019

13.30-14.30: Durmuş Demir Sabancı University, Istanbul

Charge Conservation and Gravity

Abstract: The Standard Model of elementary particles needs be extended for various reasons ranging from incorporation of gravity to construction of a dark sector. The quantum corrections induce hard masses for gauge bosons (including the photon and the gluon) in proportion to the scale of the extension. This nonconservation of the electric and color charges, as we will discuss in the talk, can be averted via the incorporation of gravity into the effective SM. The resulting framework is diverse for both phenomenology and model-building.

14.30-15.00: Coffee Break

15.00-16.00: Daniele Dorigoni Durham University, UK

An introduction to resurgence in quantum mechanics and QFTs

Abstract: Resurgence theory is an extremely useful framework to analyse asymptotic series. Typically when computing physical observables in a perturbative expansion, for example ground state energies in QM or partition functions in QFT, we produce precisely this type of asymptotic formal power series. We will see how to make physical sense out of these objects and how resurgent analysis allows us to reconstruct non-perturbative physics from asymptotic (and non-) perturbative expansions.

Place : IMBM Seminar Room, Boğazici University South Campus