Boğaziçi Math Seminar

New Constraints on Inflation from Theory

Oliver Janssen

EPFL, Lausanne

Abstract:

The theory of cosmic inflation is our most promising candidate to explain the current large scale structure of the universe. A factor complicating its experimental verification is that the framework is sufficiently broad to allow for a range of possible universes, whose differences are encoded in the details of the cosmic microwave background radiation that we observe today. I will explain how the set of possible universes resulting from inflation might be constrained by a theoretical argument. This involves Hartle and Hawking's old suggestion that the initial conditions for inflation were set up by a complex solution to Einstein's equations on a compact manifold, and a new suggestion due to Kontsevich, Segal and Witten which singles out physically sensible complex metrics. Combining these two results in a theoretical prior on inflation with observational consequences.

Date : Wednesday, November 15, 2023
Time: 13:30
Place: TB 130, Boğaziçi University