TATA-INFOSYS LECTURE SERIES:

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Lecture 1 (Friday, 4 Apr, 4:00–6:00pm, A 304):

Are moduli vacuum expectation values or parameters?

Many (compactified) string theories have moduli fields that can take arbitrary values at infinity. We argue that in asymptotically flat space-time, different string theories labelled by different asymptotic values of the moduli should be regarded as different states of the same theory, while in asymptotically AdS space-time it is more natural to regard them as different theories.

Lecture 2 (Tuesday, 8 Apr, 2:00 – 4:00pm, AG 66):

One loop correction to black hole entropy / index

We shall review the general procedure for logarithmic corrections to extremal and non-extremal black hole entropy and index, with special emphasis on the role of ensemble in these computations.

Lecture 3 (Wednesday, 9 Apr, 11:00am – 1:00pm, A 304):

Classical gravitational wave tails from soft theorem

If a set of massive objects collide in space and the fragments disperse, possibly forming black holes, then this process will emit gravitational waves. Computing the detailed gravitational wave-form associated with this process is a complicated problem, not only due to the non-linearity of gravity but also due to the fact that during the collision and subsequent fragmentation the objects could undergo complicated non-gravitational interactions. Nevertheless the classical soft graviton theorem determines the power law fall-off of the wave-form at late and early times, including logarithmic corrections, in terms of only the momenta of the incoming and outgoing objects without any reference to what transpired during the collision. I shall explain the results, briefly outline the derivation of these results and discuss possible generalizations and applications.

(Click here for the zoom link)