

Nabamita Banerjee

Research Summary:

My current research interests are:

- a) The spectrum of dyons in a class of $N=4$ supersymmetric string theories has been found for a specific set of electric and magnetic charge vectors. I extend the analysis to a general charge vectors by considering various charge carrying collective excitations of the original system. The charge vector I have taken is not the most general one, so I am trying to make an analysis for a more general charge vector. It can change the counting altogether.
- b) In 2-D string theory, the rolling tachyon states have been mapped to the fermionic states of the corresponding Matrix model. This is a consequence of the open-closed duality. But to make the analysis complete, one needs to find what the hole states of matrix model corresponds to in 2-D string theory. I am trying to understand this issue.
- c) I have been interested in studying the features of non-gravitating scalar fields and its uses to string compactification.
- d) I am also studying the phase transition of the black holes (Ricci-flat) and its consequences in dual gauge theory by using AdS-CFT .

Preprints:

1. Nabamita Banerjee, Rajeev Jain, Dileep P. Jatkar: *Non Gravitating Scalar Field In FRW Background* hep-th/0610109
2. Nabamita Banerjee, Dileep P. Jatkar, Ashoke Sen: *Adding Charges to $N=4$ Dyons* (in preparation)
3. Nabamita Banerjee, Suvankar Dutta: *Phase Transition of Electrically Charged Ricci-flat Black Holes* (in preparation)
4. Nabamita Banerjee, Ashoke Sen: *Hole State Correspondence In Matrix Model* (in preparation)

Conference/Workshops Attended:

1. *Strings 2006*, China, June, 2006.
2. *Advanced Strings School*, India, September, 2006.
3. *Informal Workshop, on String Field Theory*, India, HRI, 2006.

4. *ISM,Puri*, India, December, 2006.

Other Activities:

1. Teaching Assistant in Math Method-1, August-December, 2006.