

String Theory II (ICTS Reading Course)

Instructor : R. Loganayagam.

January 3, 2020

Basic Info :

- **Instructor name** : R.Loganayagam,
- **Venue** : Feynman Lecture Hall, ICTS Campus, Bangalore
- **Timings** : Tuesday and Friday, 02:30-4:00 PM(Tentative)
- **First Class** : Tuesday (02:30 PM), 7th Jan, 2020

- **Structure of the course** : The reading course has three components : Presentation/Class participation, assignments and exams.

Presentations will be twice a week (1.5-2hrs each) where all students take turns in reading the assigned text and presenting them.

Assignments will be a set of problems on various modules which need to be handed over by those who are crediting the course. Since I do not really have a TA for this course, I want the students who credit this course to grade each others' assignments.

There will be a mid-semester and an end-semester exam (the latter can be replaced by a term-paper, see below for details).

- **The grading policy** will be based on the following weightage :
 - Class presentation/participation : 20%
 - Assignments : 40%
 - Mid term Exam : 20%
 - End term Exam (or) Term paper : 20%

This is a continuation of the String I reading course focused on free string theory (See https://www.icts.res.in/sites/default/files/media/attachments/files/Strings_2019.pdf). See there for introductory remarks, textbooks, term paper topics etc.

The focus in this course will be perturbative (i.e., weakly coupled) string theory. We will now move on to the advanced textbooks on the subject (e.g., Polchinski, Blumenhagen-Lust-Theisen) and try to finish the topics we left untouched in the first course. These include

- T duality, D Branes, Orbifolds and Orientifolds
- Perturbative Bosonic string theory (sum over Riemann surfaces)
- Perturbative superstring
- Supergravity

If we have time, we will touch on strongly coupled string theory but I seriously doubt we will have time to do that.