

Introduction to String Theory – 117001 (Shlomo S. Razamat).

- **Contact information:** – Room 707 (Lidow building seventh floor), email: razamat@physics.technion.ac.il.
- **Office hours:** – Please drop by between 9:00 – 15:00 or schedule a meeting online through email.
- **Grading:** – 100% Home exercises (approximately one exercise every couple of weeks, five-seven sets per course).
- **Syllabus:** – These are introductory lectures on string theory. We will discuss first several advanced topics in quantum mechanics with the view of interpreting it as 1D quantum field theory. In particular: we will study the supersymmetric quantum mechanics in Hamiltonian and Lagrangian formalisms; we will discuss the notion of quantum anomalies and the notion of duality (with the example of Kramers-Wannier duality). Next we will consider the quantisation of relativistic point particle and then the relativistic bosonic string. Time permitting we will study also a subset of the following subjects: the basics of supersymmetric string theory, T-duality and D-branes, large N limits of matrix models and the notion of gauge/gravity correspondence.
- **Assumptions:** – Quantum mechanics II, Relativity, reasonable familiarity with electromagnetism (*e.g.* Electrodynamics class)
- **Material:** – Primary source:

- B. Zwiebach, [A first course in String Theory](#)

More sources (some more advanced, and some much more advanced):

- David Tong’s lectures on [supersymmetry](#) and [string theory](#)
- Hori, Katz et al, [Mirror symmetry](#)
- Polchinski, [What is string theory?](#)
- McGreevy, [Where do quantum field theories come from?](#) and [Holographic duality](#)
- Maldacena, [Lectures on AdS/CFT](#)