



THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Geometry and Topology Seminar & Mathematical Analysis and Applications Seminar

Room 290C ,Ziskind Building
on Tuesday, Nov 14, 2017
at 16:15

Ran Tessler
ETH

Integrable hierarchies, wave functions and open intersection theories

Abstract:

I will Describe KP hierarchy, its reductions KdV and r-GD, tau functions and wave functions. Witten's conjectured that the tau functions are the generating functions of intersection numbers over the moduli of curves/ r-spin curves (these conjectures are now Kontsevich's theorem and Faber-Shadrin-Zvonkine theorem resp.). Recently the following was conjectured: a. The KdV wave function is a generating function of intersection numbers on moduli of "Riemann surfaces with boundary" (Pandharipande-Solomon-T,Solomon-T,Buryak). b. The r-th GD wave function is the generating function of intersection numbers on moduli of "r-spin Riemann surfaces with boundary" (Buryak-Clader-T). I will describe the conjectures, and sketch the proof of conjecture (a) (Pandharipande-Solomon-T in genus 0, T,Buryak-T for the general case). If there will be time, I'll describe a conjectural generalization by Alexandrov-Buryak-T, and explain why the proof of (b) in high genus seems currently unreachable.