Cours spécialisé

Panorama of geometry and dynamics of moduli spaces

Anton Zorich

Pas de notes de cours prévues.

Présentation

The goal of this course is to present a panorama of concepts and ideas used in contemporary studies of geometry and dynamics of moduli spaces. In particular, I plan to describe celebrated recent results of Alex Eskin and of Maryam Mirzakhani. To cover such a broad material, I would be forced to sacrifice complete proofs focusing on concepts, ideas and ties between them. In this sense, the course might be unusual if not embarrassing for those students who are used to a style, where every fact is justified by a complete and rigorous proof. However, an advantage is that such a course does not need any particular prerequisites.

I am writing this description in English, because it is not excluded that the course would be given in English: the choice of the language would depend on preferences of (majority of) the audience and would be decided at the first lecture.

Part I. Flat world (4 lectures).

Part II. Hyperbolic world (4 lectures).
- Measured laminations, train-track coordinates. Mirzakhani’s count of simple closed hyperbolic geodesics. Witten-Kontsevich correlators, an idea of symplectic reduction, and an idea of Mirzakhani’s proof of Witten’s conjecture.

Part III. Bridging flat and hyperbolic worlds (4 lectures).
- Random geodesic multicurves on surfaces of large genera and random square-tiled surfaces of large genera. Meanders count.

Contenu


– Measured laminations, train-track coordinates. Mirzakhani’s count of simple closed hyperbolic geodesics. Witten-Kontsevich correlators, an idea of symplectic reduction, and an idea of Mirzakhani’s proof of Witten’s conjecture.


– Random geodesic multicurves on surfaces of large genera and random square-tiled surfaces of large genera. Meanders count.

Prérequis

aucun

Bibliographie


– Benson Farb and Dan Margalit. A primer on mapping class groups. *Chapter 15*

Contact : anton.zorich@imj-prg.fr