Ultrametric space in Teichmüller theory and nonperturbative String theory

Abstract
Among its many accomplishments, String Theory has a major drawback: It lacks of an exact nonperturbative formulation. In 1990 Hong and Rajeev gave insight of what a solution should be. They proposed an ill defined integration over the Universal Teichmüller space. However this space is too big (infinite non separable) to give a well defined integral. We propose as a better candidate the Teichmüller space of the Universal Hypercbolic Lamination introduced by Sullivan. We show the latter space is holomorphic and Kähler isometric to the space of continuous functions from an ultrametric space to a finite dimensional Teichmüller space and find the appropriate notions of Siegel disk and Kähler potential for this space. This is joint work with A.Verjovsky.