Boğaziçi
MATH GRAD SEMINAR

Universal Teichmüller Space

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Abstract: The universal Teichmüller space $\mathcal{T}$ is defined by L.Bers in 1965. $\mathcal{T}$ is the space of normalized quasisymmetric homeomorphisms of the unit circle S^1 fixing three points.

In this seminar, we first focus on quasiconformal homoemorphisms and the universal Teichmüller space. Moreover, we introduce the Douady-Earle extension in order to find a quasiconformal extension of a given quasisymmetric map. Next, we construct the bijection between quotient spaces Homeo$+(S^1)/\mathrm{PSL2}(\mathbb{R})$ and $Tess'/\mathrm{PSL}_2(\mathbb{R})$ where $Tess'$ is the collection of all tesselations with distinguished oriented edge of $\mathbb{D}$.

Finally, by considering the tesselation produced from the flip along the distinguished oriented edge of the Farey tesselation, we obtain a quasiconformal map which is the Douady-Earle extension of the characteristic mapping of the tesselation.

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