

A High-order Uniformization Theorem in Conformal Geometry

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Abstract

In this talk, we will discuss the problem of finding metrics with constant Q -curvature on a given closed Riemannian manifold (M, g) with dimension an arbitrary integer $n > 2$. This will be equivalent to solving an n -th order elliptic PDE (if n is even) or an n -th order elliptic integral equation (if n is odd) with exponential nonlinearity and variational structure in both cases. However when the total integral of the Q -curvature is large, the Euler-Lagrange functional associated is unbounded from below, implying that we have to find critical points of saddle type. We will show how the search of saddle points leads naturally to consider the set of formal barycenters of the manifold.