Zheng, Kai
Geodesics in the space of Kähler cone metrics. II: Uniqueness of constant scalar curvature Kähler cone metrics. (English) Zbl 1434.53075

Summary: In this article, we give a complete construction of geodesics in the space of Kähler cone metrics (cone geodesics), and we address the problem of uniqueness of constant scalar curvature Kähler (cscK) cone metrics when the cone angle $\beta$ stays in the interval $(0, 1]$. The part $\beta \in [\frac{1}{2}, 1)$ requires new weighted function spaces and new analytic techniques. We determine the asymptotic behavior of both cone geodesics and cscK cone metrics, prove the reductivity of the automorphism group, and establish the linear theory for the Lichnerowicz operator, which immediately implies the openness of the path deforming the cone angles of cscK cone metrics.

MSC:
53C55 Global differential geometry of Hermitian and Kählerian manifolds
58D17 Manifolds of metrics (especially Riemannian)

Keywords:
weighted function spaces; cone geodesics; cone metrics; automorphism group; Lichnerowicz operator

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