

Chang, Kung Ching; Liu, Jia Quan

On Nirenberg's problem. (English) Zbl 0786.58010

Int. J. Math. 4, No. 1, 35-58 (1993).

The paper focusses on the problem of characterizing the functions K which can be the Gaussian curvature of a metric g on S^2 which is pointwise conformal to the standard metric g_0 (Nirenberg's Problem).

The authors face the problem through its reduction to the solvability of a partial differential equation which is the Euler-Lagrange equation of a functional and to the study of its critical points using their generalization of Morse theory to general boundary conditions. By avoiding complicated techniques and relying on more conceptual arguments, they claim a simplification of the usual treatment of the problem. Besides obtaining further results, the authors claim to have all known results in the literature unified under their proof.

Reviewer: U.D'Ambrosio (Campinas)

MSC:

58E05 Abstract critical point theory (Morse theory, Lyusternik-Shnirel'man theory, etc.) in infinite-dimensional spaces

58E11 Critical metrics

Cited in **32** Documents

Keywords:

Nirenberg's Problem; Gaussian curvature; Euler-Lagrange equation; critical points; Morse theory

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