Ann. Scuola Norm. Sup. Pisa Cl. Sci. (5)
Vol. VII (2008), 241-270

A Monge-Ampère equation in conformal geometry

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Abstract. We consider the Monge-Ampère-type equation $\det(A+\lambda g) = \text{const}.$, where A is the Schouten tensor of a conformally related metric and $\lambda > 0$ is a suitably chosen constant. When the scalar curvature is non-positive we give necessary and sufficient conditions for the existence of solutions. When the scalar curvature is positive and the first Betti number of the manifold is non-zero we also establish existence. Moreover, by adapting a construction of Schoen, we show that solutions are in general not unique.

Mathematics Subject Classification (2000): 53A30.