

Monge-Ampère equations on compact Hessian manifolds

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Abstract. We consider degenerate Monge-Ampère equations on compact Hessian manifolds. We establish compactness properties of the set of normalized quasi-convex functions and show local and global comparison principles for twisted Monge-Ampère operators. We then use the Perron method to solve Monge-Ampère equations whose right-hand side involves an arbitrary probability measure, generalizing works of Cheng-Yau, Delanoë, Caffarelli-Viaclovsky and Hultgren-Önnheim. The intrinsic approach we develop should be useful in deriving similar results on mildly singular Hessian varieties, in line with the Strominger-Yau-Zaslow conjecture.

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