

Regularity of solutions to the linearized Monge-Ampère equation

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Abstract

The linearized Monge-Ampère equation is a second-order degenerate elliptic equation which appears in several applications such as affine differential geometry, complex geometry and fluid mechanics. In this talk we will discuss some recent results about smoothness properties of its solutions. We establish interior estimates for the first and second derivatives of solutions u to the equation. In particular, our results give a solution to the conjecture about the relationship between L^p estimates for the Hessian D^2u and the determinant of the Hessian of the solution ϕ to the Monge-Ampère equation. This is a joint work with C. Gutierrez.