

A priori estimates for the complex Hessian equations

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Abstract

We prove some L^∞ a priori estimates as well as existence and stability theorems for the weak solutions of the complex Hessian equations in domains of \mathbb{C}^n and on compact Kähler manifolds. We also show optimal L^p integrability for m -subharmonic functions with compact singularities, thus partially confirming a conjecture of Błocki. Finally we obtain a local regularity result for $W^{2,p}$ solutions of the real and complex Hessian equations under suitable regularity assumptions on the right hand side. In the real case the method of this proof improves a result of Urbas.