

The complex Hessian equations

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I will present the existence and stability results for the complex Hessian equations

$$(dd^c u)^m \wedge \beta^{n-m} = f\beta^n,$$

($\beta = dd^c|z|^2$ and u is the unknown) in domains of \mathbb{C}^n and

$$(\omega + dd^c u)^m \wedge \omega^{n-m} = f\omega^n,$$

on a compact Kähler manifold (X, ω) . I will focus on the methods of pluripotential theory. They find also applications in the study of other equations considered in complex geometry.