

## Complex Hessian equations with prescribed singularity on compact Kähler manifolds

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**Abstract.** Let  $(X, \omega)$  be a compact Kähler manifold of dimension  $n$  and fix  $1 \leq m \leq n$ . We prove that the total mass of the complex Hessian measure of  $\omega$ - $m$ -subharmonic functions is non-decreasing with respect to the singularity type. We then solve complex Hessian equations with prescribed singularity, and prove a Hodge index type inequality for positive currents.

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