

Seminario de Ecuaciones Diferenciales y Análisis Numérico
Universidad de Buenos Aires - Argentina
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Ciudad Universitaria - Pabellón I
Departamento de Matemática
Segundo Piso - Sala de Conferencias del DM-IMAS, 14:00.

Sharp estimates of semistable radial solutions of k -Hessian equations.

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We consider semistable, radially symmetric, and increasing solutions of $S_k(D^2u) = g(u)$ in the unit ball of $\mathbb{R}^n$, where $S_k(D^2u)$ is the k -Hessian operator of u and $g \in C^1$ is a general positive nonlinearity. We establish sharp pointwise estimates for such solutions in a proper weighted Sobolev space, which are optimal and do not depend on the specific nonlinearity g . As an application of these results, we obtain pointwise estimates for the extremal solution and its derivatives (up to order three) of the equation $S_k(D^2u) = \lambda g(u)$, posed in B_1 , with Dirichlet data $u|_{B_1} = 0$, where g is a continuous, positive, non-increasing function such that $\lim_{t \rightarrow -\infty} \frac{g(t)}{|t|}^k = +\infty$.

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