

1129-35-270

Jeffrey Case and **Yi Wang*** (ywang@math.jhu.edu), 3400 N. Charles St, 404 Krieger Hall Math Dept, Johns Hopkins Univ., Baltimore, MD 21218. *Title: A fully nonlinear Sobolev trace inequality.*

Abstract: The k -Hessian operator σ_k is the k -th elementary symmetric function of the eigenvalues of the Hessian. It is known that the k -Hessian equation $\sigma_k(D^2u) = f$ with Dirichlet boundary condition $u = 0$ is variational; indeed, this problem can be studied by means of the k -Hessian energy $\int -u\sigma_k(D^2u)$. We construct a natural boundary functional which, when added to the k -Hessian energy, yields as its critical points solutions of k -Hessian equations with general non-vanishing boundary data. As a consequence, we prove a sharp Sobolev trace inequality for k -admissible functions u which estimates the k -Hessian energy in terms of the boundary values of u . This is joint work with Jeffrey Case. (Received March 17, 2017)