GAMES FOR EIGENVALUES OF THE HESSIAN AND CONCAVE/CONVEX ENVELOPES

JULIO DANIEL ROSSI
UNIVERSIDAD DE BUENOS AIRES

ABSTRACT. We deal with the PDE $\lambda_j(D^2u) = 0$, in Ω, with $u = g$, on $\partial\Omega$. Here $\lambda_1(D^2u) \leq ... \leq \lambda_N(D^2u)$ are the ordered eigenvalues of the Hessian D^2u. The equation $\lambda_1(D^2u) = 0$ is just the PDE verified by the convex envelope inside Ω of the boundary datum g. Our main result is to show a necessary and sufficient condition on the domain so that the problem has a continuous solution for every continuous datum g. We also introduce a related two-player zero-sum game whose values approximate solutions to this PDE problem.

(joint work with P. Blanc)