1035-35-1366   **Ahmed Mohammed*** (`amohammed@bsu.edu`), Department of Mathematical Sciences, Ball State University, Muncie, IN 47306. *Existence and Estimates of solutions to a singular Dirichlet problem for the Monge-Ampère equation.*

Given a a strictly convex, smooth bounded domain Ω in $\mathbb{R}^n$, we establish the existence of a negative convex solution in $C^\infty(\Omega) \cap C(\overline{\Omega})$ with zero boundary value to the singular Monge-Ampére equation $\det(D^2u) = p(x)g(-u)$. An associated Dirichlet problem will be employed to provide a necessary and sufficient condition for the solvability of the singular boundary value problem. Estimates of solutions will also be given and regularity of solutions will be deduced from the estimates. (Received September 19, 2007)