

Meeting: 1004, Bowling Green, Kentucky, SS 12A, Special Session on Partial Differential Equations and Their Applications

1004-35-130 **Andrzej Swiech*** (swiech@math.gatech.edu), School of Mathematics, Georgia Institute of Technology, Atlanta, GA 30332. *Remarks on maximum principles for uniformly elliptic PDE with unbounded and quadratic terms.*

We will discuss various generalizations of the maximum principle of Aleksandrov-Bakelman-Pucci type. In particular we will present results for the Pucci extremal equations

$$\mathcal{P}^-(D^2u) - \gamma(x)|Du| \leq f(x) \quad \text{in } \Omega$$

and

$$\mathcal{P}^-(D^2u) - \gamma|Du|^2 \leq f(x) \quad \text{in } \Omega,$$

where $f \in L^p(\Omega)$ and in the first equation $\gamma \in L^q(\Omega)$. We will give ranges for p and q for the maximum principle to hold for the first equation and we will show that for the second equation the maximum principle is true only if $\|f\|_{L^p(\Omega)}$ is small enough. (Received January 21, 2005)