Meeting: 1000, Albuquerque, New Mexico, SS 12A, Special Session on Regularity in PDEs and Harmonic Analysis

1000-35-56 **Laura de Carli*** (decarlil@fiu.edu), Florida International University, Deparment of Mathematics, DM building, Univ. Park, Miami, FL 33199, and **Steve Hudson**. *Unique continuation for second order elliptic operators: a non-Carleman approach.* Preliminary report.

We prove a unique continuation theorem for the differential inequality

$$|div(\lambda(x)\nabla u)| \leq |V(x)u(x)|, \quad u \in H^{2,1}(\mathbf{R}^n) \tag{1}$$

where $\lambda(x)$ is a Lipschitz continuous matrix which satisfies

$$\langle \lambda(x)v,\ v\rangle \geq 0, \quad v \in \mathbf{R}^n.$$

Under suitable assumptions on $V(x)$, we prove that every $H^{2,1}$ solution of the differential inequality (1) which vanishes identically outside of a compact set is $\equiv 0$. We also prove a strong unique continuation theorem for nonnegative solutions of the differential inequality

$$|\Delta u(x)| \leq |V(x)u(x)|.$$

which is a special case of (1). Our proofs do not use Carleman type inequalities.

(Received August 10, 2004)