1032-35-130 **Antonio Vitolo***, Dept. of Mathematics and Informatics, University of Salerno, p. Grahamstown, 84084 Fisciano, Salerno, Italy. *Topics on second-order elliptic equations in unbounded domains: from harmonic functions to viscosity solutions.*

In the theory of the classical harmonic functions Maximum Principles and Liouville Theorems are among the most relevant features in unbounded domains. The symmetry of the Laplace operator provides elegant proofs. Here we will consider fully nonlinear second-order elliptic operators with structure conditions that include all uniformly elliptic ones, but not only. Also, an additive gradient term, with at most quadratic growth, is allowed. Moreover, solutions will be intended in the viscosity sense, where equations have to be checked pointwise by smooth test functions. Our approach is based on deep results of elliptic theory, the so-called Harnack inequalities, essentially due to Caffarelli and Trudinger, used in our arguments after suitable adjustments. Regarding the weak Maximum Principle, a measure-geometric condition, but not smoothness, of the domain is needed, which goes back to an idea of Berestycki–Nirenberg–Varadhan, successively refined by Cabrè. Here a weaker condition allows to extend the ABP estimate to parabolic shaped and conical domains, and even larger ones, such as complements of hypersurfaces. (Received August 19, 2007)