1003-35-1676 **Mikhail V Safonov*** (`safonov@math.umn.edu`), University of Minnesota, School of Mathematics, 127 Vincent Hall, 206 Church Street S.E., Minneapolis, MN 55455. *Boundary behavior of solutions to second order elliptic and parabolic equations.*

We show that the *boundary Harnack inequality* and *comparison theorems* are true for positive solutions to second order elliptic equations in a domain $\Omega \subset \mathbb{R}^n$ satisfying an interior cone condition. More specifically, our assumptions are close to those for the *nontangentially accessible* (NTA) domains, according to David Jerison and Carlos Kenig, except we do not impose any restrictions on the complement of Ω near the boundary points. These facts and their "parabolic" counterparts yield new results on the local and asymptotic behavior of solutions. In particular, for the eigenvalue problem

$$Lu = \lambda u \quad \text{in} \quad \Omega, \quad u = 0 \quad \text{on} \quad \partial\Omega,$$

where L is a uniformly elliptic operator in the divergence of non-divergence form, one can evaluate the gap between the principal eigenvalue λ_1 and the real parts of the remaining eigenvalues: $\lambda_1 - Re\,\lambda_k \geq c_0 > 0, \; k = 2, 3, \ldots$. Here the constant $c_0 > 0$ does not depend on the smoothness of coefficients of L. (Received October 06, 2004)