

# Boundary estimates for second order elliptic equations

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We consider positive solutions  $u(x)$  to second order elliptic equations in a bounded domain  $\Omega \subset \mathbf{R}^n$ , which vanish at a point  $x_0 \in \partial\Omega$ . We discuss necessary and sufficient geometric conditions on the structure of  $\partial\Omega$  near  $x_0$ , which guarantee the Hopf-Oleinik type estimate

$$\liminf \frac{u(x)}{|x - x_0|} \geq c = \text{const} > 0,$$

when  $x$  approaches to  $x_0$  in a non-tangential direction to  $\partial\Omega$ . These conditions are sharp for the whole class of uniformly elliptic equations in non-divergence form, including the Laplace equation.

The talk will be in Vincent Hall 570 at 3:35 pm