

Large solutions at large

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The title of this talk answers simultaneously three questions, pertaining to three distinct mathematical subjects: conformal geometry, branching stochastic processes, and nonlinear elliptic PDEs. This motivates us to study so-called boundary blow-up solutions (large solutions, for short), introduced independently by J.B. Keller and R. Osserman. That is, solutions to the equation

$$\Delta u = f(u), \quad \text{in } \Omega,$$

that converge to $+\infty$ as x approaches the boundary $\partial\Omega$.