1011-35-94 **Plamen Stefanov*** (stefanov@math.purdue.edu), West Lafayette, IN 47907. *Sharp upper bounds on the number of scattering poles.*

We study the scattering poles of a compactly supported perturbation P of the Laplacian in the Euclidean space $\mathbf{R}^n$. It is known that under some general "black-box" assumptions, the counting function $N(r)$ of the resonances admits the upper bound $N(r) \leq C_n r^n$, $r > 1$ with a unspecified C_n. We find an explicit value of A_n such that $N(r) \leq A_n r^n + o(r^n)$ in the classical cases (the Schrödinger operator, scattering by a obstacle or by a metric). This follows from a result about the general case, where we show that $N(r) \leq A_n R_0^n r^n + 2N^\sharp(r) + o(r^n)$, where $N^\sharp(r)$ is the counting function of the eigenvalues of a reference operator, and R_0 is the radius of the black box. The constant A_n is the coefficient in the asymptotic of the resonances of the unit sphere. We show that our estimate turns into an asymptotic in some special spherically symmetric cases. (Received August 17, 2005)