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Elliptic operators with unbounded diffusion coefficients in *L^p* spaces

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Abstract. We prove that, for $N \ge 3$, $\alpha > 2$, $\frac{N}{N-2} , the operator <math>Lu = m(x)(1 + |x|^{\alpha})\Delta u$ generates an analytic semigroup in L^p which is contractive if and only if $p \ge \frac{N+\alpha-2}{N-2}$. Moreover, for $\alpha < \frac{N}{p'}$, we provide an explicit description of the domain. Spectral properties of the operator L are also obtained.

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