

ON SOME CLASSES OF OPERATOR GROUPS AND EXPLICIT FORMULAS OF RELATED SEMIGROUPS

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We present different realizations of the operators

$$L_{\theta,a}u = x^{2a}u'' + (ax^{2a-1} + \theta x^a)u', \quad \theta \in \mathbf{R}, \quad a \in \mathbf{R},$$

acting on suitable spaces of real valued continuous functions.

Our main aim will be to show that, in some cases, the closures of these operators can be interpreted as perturbations of squares of generators of groups and give rise to explicit representations of suitable semigroups, via Romanov's formula.

Applications to the Black-Merton-Scholes equation will be also considered.

The main results were obtained in the joint paper [1] with J.A. Goldstein and R.M. Mininni.

REFERENCES

1. J.A. Goldstein, R.M. Mininni and S. Romanelli, *Markov semigroups, groups of operators and estimating functions* (submitted).