

## Resolvent for certain classes of generators of $C_0$ -groups

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The spectral theory of nonselfadjoint operators is much more complicated than the theory for selfadjoint ones and it has many open problems. This is caused mainly by a fact that the spectrum does not contain much information about the behavior of nonselfadjoint operator. Thus important problems are obtaining the explicit form of the resolvent and controlling the resolvent of nonselfadjoint operator.

In this talk we will discuss the explicit form and asymptotic properties of the resolvent for the classes of generators of  $C_0$ -groups with purely imaginary eigenvalues, clustering at  $i\infty$ , and complete minimal family of eigenvectors which, however, do not form a Schauder basis. These classes were recently presented by the author and Grigory Sklyar in [1]. Multiple applying of the discrete Hardy inequality serves as the keystone for the proofs of the corresponding results.

This is a joint work with Grigory Sklyar.

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- [1] Sklyar G. M., Marchenko V. Hardy inequality and the construction of infinitesimal operators with non-basis family of eigenvectors// J. Funct. Anal. – 2017. – 272(3). – pp. 1017 - 1043.