N. D. Kopachevsky, K. A. Radomirskaya, A. R. Yakubova kopachevsky@list.ru, radomirskaya@mail.ru, tehnotat@mail.ru SPECTRAL AND INITIAL BOUNDARY VALUE PROBLEMS GENERATED BY SESQUILINEAR FORMS¹ Crimean Federal V.I. Vernadsky University, Taurida Academy, Simferopol, Crimea

1. Abstract Green's Identity for a triple of Hilbert spaces and trace operator and its generalization for the case of boundary and uniformly accretive form is considered. We give also formulation of Abstract Green's Identity for mixed boundary value problems.

2. On example of generalized symmetric Green's Identity for Laplace operator we propose the general approach to transmission problems for some configurations of adjoined regions with Lipschitz boundaries. The necessary and sufficient conditions for solvability of these problems are formulated.

3. On the base of generalized Green's Identity for nonsymmetric form generated by Laplace operator we study spectral and initial boundary value problems. In particulary, these are: Dirichlet, Newmann, Steklov, Agranovich, S. Krein and Chueshov problems. We analyze connection between solutions of perturbed (nonsymmetrical forms) and unperturbed (symmetrical forms) problems. Spectral properties and basis ones of eigen- and associated elements of these problems are considered. The theorems on correct solvability of initial boundary value problems are proved.

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