## On Krein's formula in Pontryagin spaces $\Pi_{\kappa}$ SERGEY BELYI

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We extend some of the recent results related to the Krein resolvent formula, which describes the resolvent difference of two self-adjoint extensions a closed symmetric linear operator, to the indefinite metric space with finite indefinite rank. We show that coefficients in Krein's formula can be expressed in terms of analogues of the von Neumann parametrizations for the indefinite case. The properties of Weyl-Titchmarsh functions corresponding to  $\pi$ -self-adjoint extensions of a  $\pi$ symmetric operator are studied. In particular, it is shown that Weyl-Titchmarsh functions corresponding to above mentioned  $\pi$ -self-adjoint extensions are connected via linear-fractional transformation with the coefficients presented in terms of von Neumann's parameters. All the concepts are illustrated with an example based upon a differential  $\pi$ -symmetric operator in the space  $\Pi_1$  and its  $\pi$ -self-adjoint extensions. These results are obtained in collaboration with E. Tsekanovskii.