

\mathcal{PT} -symmetry, flip symmetry and Hilbert-Schmidt Lie groups in Krein spaces

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The first part of the talk is devoted to flip-symmetric representations of finite-dimensional \mathcal{PT} -symmetric matrices and their technical usefulness in concrete calculations and structure analyses.

In the second part of the talk, earlier results on \mathcal{PT} -symmetry related Lie algebra structures, Cartan decompositions and Lie triple systems for finite-dimensional matrix algebras are extended to infinite-dimensional setups of Hilbert-Schmidt Lie algebras and Hilbert-Schmidt Lie groups acting in Krein spaces. The specific structure properties of these algebras and groups are discussed and possible applications briefly sketched.

This is work in collaboration with Jia-wen Deng and Qing-hai Wang.