

## ERROR ANALYSIS AND COMPUTATIONAL ASPECTS OF SR FACTORIZATION VIA OPTIMAL SYMPLECTIC HOUSEHOLDER TRANSFORMATIONS\*

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*Dedicated to Gérard Meurant on the occasion of his 60th birthday*

**Abstract.** Symplectic QR like methods for solving some structured eigenvalue problems involves SR factorization as a key step. The optimal symplectic Householder SR factorization (SROSH algorithm) is a suitable choice for performing such a factorization. In this paper, we carry out a detailed error analysis of the SROSH algorithm. In particular, backward and forward error results are derived. Also, the computational aspects of the algorithm (such as storage, complexity, implementation, factored form, block representation) are described. Some numerical experiments are presented.

**Key words.** Skew-symmetric inner product, optimal symplectic Householder transformations, SR factorization, error analysis, backward and forward errors, implementation, factored form, WY factorization, complexity.

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