

Errata in „Stability Reservation in Projection-based Model Order Reduction of Large-Scale Systems“  
by Rosa Castañé Selga, Boris Lohmann and Rudy Eid.

The authors apologize for an error in Theorem 3.1: The proof is only valid for the case  $p = 2$ . This is because an orthonormal matrix  $V$  with  $\|V\|_p = \|V\|_p^T = 1$  and spanning a specific subspace does always exist for  $p = 2$ , but does not in general. In the corrected formulation of the theorem,  $p$  should therefore be substituted by 2.

In the subsequent use of the theorem in lemmas 3.1 to 3.3 and in both methods presented in section 5 (the „iterative matrix-balancing“ method and the „approximated solutions of quadratic Lyapunov equations“ method), the case  $p = 2$  is exclusively used, in which the theorem holds. Section 4 and the first sentence of section 5 are to be restricted to  $p = 2$ . The last sentence in the conclusions referring to the 1 and infinity norms should be deleted.

The case  $p = 2$  corresponds to the most widely used *Euclidean vector norm*.

Two additional remarks:

For a better understanding of Definition 3.1, the words “contractive” and “ $\gamma$ -contractive”, should be replaced by “contractive in the  $p$ -norm” and “ $\gamma$ -contractive in the  $p$ -norm”, respectively.

The authors would like to point out that if there exists only one norm  $p$ ,  $p \in N$ , for which the matrix measure of  $A$  or any of its similarity transformations is smaller than zero, then the (transformed) system is contractive in that norm. However, stability after a one-sided reduction method is only preserved if the system is contractive in the 2 norm. Note that, the fact that a system is contractive in one norm does not imply that it is contractive in the other ones.

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