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# Loewner-based moment matching for bilinear systems

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## Résumé

This work brings together the moment matching approach based on Loewner functions and the classical Loewner framework based on the Loewner pencil in the case of bilinear systems. Loewner functions are defined based on the bilinear Loewner framework, and a Loewner equivalent model is produced using these functions. This model is composed of infinite series that needs to be truncated in order to be implemented in practice. It is shown that the moment matching procedure based on the proposed Loewner functions and the classical interpolatory bilinear Loewner framework both result in approximate Loewner equivalent models, the main difference being that the latter preserves bilinearity at the expense of a higher order.

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