

# **A block tangential Lanczos method for model reduction of large-scale first and second order dynamical systems**

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In this work, we present a new approach for model reduction in large scale first and second order dynamical systems with multiple inputs and multiple outputs (MIMO). This approach is based on the projection of the initial problem onto tangential Krylov subspaces to produce a simpler reduced-order model that approximates well the behaviour of the original model. We present an algorithm named: Adaptive Block Tangential Lanczos-type (ABTL) algorithm. We give some algebraic properties and present some numerical experiences to show the effectiveness of the proposed algorithms.