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## Detection of the Index and Discretization of Port-Hamiltonian Descriptor Systems

*Monday 26 May 2025 17:10 (1h 50m)*

We provide a method for detecting Kronecker blocks of size two in port-Hamiltonian pencils of the form  $\lambda E - (J - R)Q$ , where  $Q^*E$  and  $R$  are positive definite, and  $J$  is skew-Hermitian.

The method is based on first-order perturbation theory and randomization. Furthermore, we study the impact of proximity to unstable systems on the numerical solutions (via the midpoint rule) of the corresponding DAE. This is joint work with Michał Wojtylak.

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**Session Classification:** Poster Blitz & Poster Section