

**Krajewski, Wiesław; Viaro, Umberto****Routh-type  $L_2$  model reduction revisited.** (English) Zbl 1449.93091

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Summary: A computationally simple method for generating reduced-order models that minimise the  $L_2$  norm of the approximation error while preserving a number of second-order information indices as well as the steady-state value of the step response, is presented. The method exploits the energy-conservation property peculiar to the Routh reduction method and the interpolation property of the  $L_2$ -optimal approximation. Two examples taken from the relevant literature show that the suggested techniques may lead to approximations that are not worse than those afforded by popular more cumbersome techniques.

**MSC:****93C05** Linear systems in control theory**93A15** Large-scale systems**93B11** System structure simplification**Keywords:**model reduction;  $L_2$  norm; Routh approximation; steady-state response**Full Text:** [DOI](#)