Some Properties of Higher Order Differential Algebraic Equations with Singular Points

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In this talk, we consider systems of ordinary differential equations of arbitrary order with an identically singular matrix multiplying the higher derivative of the desired vector-function. Special attention is paid to the systems with singular points in the domain. We provide a formal definition of singular points and their classification. The criteria for the presence (absence) of singular points on the interval of integration has been formulated. A number of examples are given to illustrate theoretical results.

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