



Einladung zum Oberseminar Dynamische Systeme und Kontrolltheorie

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Lagrange and Lyapunov stability of degenerate differential equations

For degenerate differential equations, which are also called differential-algebraic equations (DAEs), conditions of the Lagrange stability and instability, the Lyapunov stability and instability, and asymptotic stability (including conditions of asymptotic stability in the large or complete stability), will be presented.

The Lagrange stability of a differential equation guarantees its global solvability for all consistent initial values and the boundedness of all its solutions. The Lagrange instability enables to identify solutions with finite escape time, i.e. the solutions blowing up in finite time. The definitions of the Lyapunov stability and instability for degenerate differential equations (DAEs) are similar to the corresponding definitions for explicit ordinary differential equations. Note that the Lyapunov stability (respectively, instability) of a solution, in general, does not imply its Lagrange stability (respectively, instability). The Lagrange stability of a solution, in general, also does not imply its Lyapunov stability, but the Lagrange instability of the solution implies its Lyapunov instability

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Zu diesem Vortrag laden wir Sie herzlich ein.

gez. Sergey Dashkovskiy