

Modelling, simulation and control of differential-algebraic systems

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In this talk we will present a framework for modelling, simulation and control of systems governed by automatically generated differential-algebraic systems. In this framework the system is first regularized to a strangeness-free behavior system, including index reduction, construction of consistent initial conditions, so that simulation and control can be performed without many limitations. We will present several examples from applications in multi-physics systems and optimal control.