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                     continuous systems / / Axel Schild

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   Sommario/riassunto   Long description: This work presents novel methods for the analysis
                        and the switching law design of periodically operated discretely
                        controlled continuous systems. Such hybrid systems consist of a
                        continuous-valued nonlinear plant arranged in feedback connection
                        with a modular discrete-event controller. The plant features a finite
                        number of operation modes. Differences in the mode dynamics are
                        employed by the controller for regulating the plant outputs according
                        to given specifications. Both transient and stationary control scenarios
                        are studied in this book. Transient control tasks are tackled by a
                        tailored extension of receding horizon model-predictive control. On
                        this basis, procedures for the successive exploration of switching
                        surface configurations and, alternatively, for a dynamic switching law
                        realization are presented. Stationary control tasks are tackled by a
                        systematic design of switching plane configurations. Here, strong focus
                        is put on disturbance attenuation. The associated design problem is
                        translated into a set of linear or bilinear matrix inequalities, which are
                        solved via standard tools.