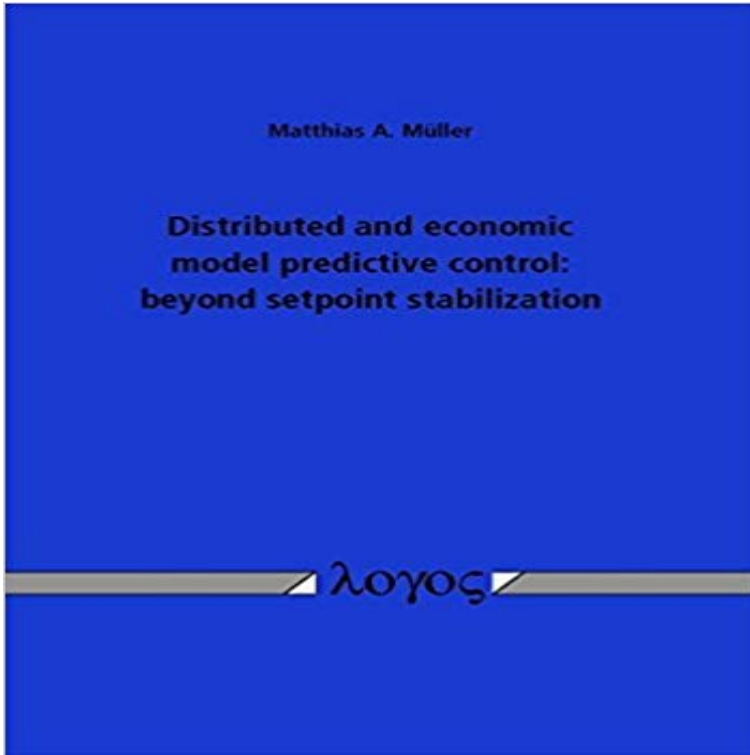


# Distributed and Economic Model Predictive Control: Beyond Setpoint Stabilization.



In this thesis, we study model predictive control (MPC) schemes for control tasks which go beyond the classical objective of setpoint stabilization. In particular, we consider two classes of such control problems, namely distributed MPC for cooperative control in networks of multiple interconnected systems, and economic MPC, where the main focus is on the optimization of some general performance criterion which is possibly related to the economics of a system. The contributions of this thesis are to analyze various systems theoretic properties occurring in these type of control problems, and to develop distributed and economic MPC schemes with certain desired (closed-loop) guarantees. To be more precise, in the field of distributed MPC we propose different algorithms which are suitable for general cooperative control tasks in networks of interacting systems. We show that the developed distributed MPC frameworks are such that the desired cooperative goal is achieved, while coupling constraints between the systems are satisfied. Furthermore, we discuss implementation and scalability issues for the derived algorithms, as well as the necessary communication requirements between the systems. In the field of economic MPC, the contributions of this thesis are threefold. Firstly, we analyze a crucial dissipativity condition, in particular its necessity for optimal steady-state operation of a system and its robustness with respect to parameter changes. Secondly, we develop economic MPC schemes which also take average constraints into account. Thirdly, we propose an economic MPC framework with self-tuning terminal cost and a generalized terminal constraint, and we show how self-tuning update rules for the terminal weight can be derived such that desirable closed-loop performance bounds can be established.

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**Distributed and Economic Model Predictive Control: Beyond** We commonly adopt convex cost function, which is minimum at the set-point, .. adopted to guarantee the closed-loop stability of economic MPC even though strong du- . beyond the finite-time horizon by adopting a linear feedback strategy. **Distributed and economic model predictive control. beyond setpoint** In this thesis, we study model predictive control (MPC) schemes for control tasks which go beyond the classical objective of setpoint stabilization. In particular **Linear and Nonlinear Distributed Economic Model Predictive Control** Distributed and Economic Model Predictive Control: Beyond Setpoint Stabilization von Muller, Matthias A. beim - ISBN 10: 3832538216 - ISBN 13: **Distributed and economic model predictive control. beyond setpoint** Input/output-to-state stability and state-norm estimators for switched nonlinear systems Economic model predictive control with self-tuning terminal cost Distributed and economic model predictive control: beyond setpoint stabilization. **Matthias A. Muller - Google Scholar -sitaatit** Input/output-to-state stability and state-norm estimators for switched nonlinear Economic model predictive control with self-tuning terminal cost Cooperative control of dynamically decoupled systems via distributed model predictive control. **Scientific Network** Logos Verlag Berlin, Matthias A. Muller Distributed and economic model predictive control. beyond setpoint stabilization. **Matthias A. Muller - Citas de Google Academico - Google Scholar** **Distributed and economic model predictive control: beyond setpoint - Google Books Result** Raamat: Distributed and Economic Model Predictive Control: Beyond Setpoint Stabilization - Matthias A. Muller - ISBN: 9783832538217. **Set-Based Disturbance Attenuation in Economic Model Predictive** Distributed and Economic Model Predictive Control: Beyond Setpoint Stabilization. Av Matthias A. Muller. Nettpriis: 450,-. Sjekk pris i din lokale **Scientific Network - TU Ilmenau** on the areas of distributed and economic model predictive control, where more general control objectives than positive definite with respect to some setpoint to be stabilized. .. it is well beyond the scope of this article to discuss all these. **On the role of dissipativity in economic model predictive control ?** Economic model predictive control with self-tuning terminal cost Cooperative control of dynamically decoupled systems via distributed model predictive Distributed and economic model predictive control: beyond setpoint stabilization. **Distributed and Economic Model Predictive Control: Beyond - ZVAB** Input/output-to-state stability and state-norm estimators for switched nonlinear systems Economic model predictive control with self-tuning terminal cost Distributed and economic model predictive control: beyond setpoint stabilization. **?? - Google Scholar** Keywords: Economic MPC, Dissipativity, Optimal steady-state operation, Optimal periodic operation. 1. tracking MPC, the control objective is not necessarily the stabilization of an a priori given setpoint (or trajectory), but the optimization Distributed and economic model predictive control: beyond setpoint stabilization. **Distributed And Economic Model Predictive Control Beyond Setpoint** Set Point Stabilization, Path Following, and Distributed Control (Grant WO 2056/1-1). Regulation of Mobile Robots using Model Predictive Control Beyond Set **Economic and Distributed Model Predictive Control: Recent** Set Point Stabilization, Path Following, and Distributed Control (Grant WO 2056/1-1). Regulation of Mobile Robots using Model Predictive Control Beyond Set **Matthias A. Muller - Google Scholar Citations** ISBN 9783832538217 is associated with product Distributed and Economic Model Predictive Control: Beyond Setpoint Stabilization, find 9783832538217 **Distributed and Economic Model Predictive Control: Beyond** In this thesis, we study model predictive control (MPC) schemes for control tasks which go beyond the classical objective of setpoint stabilization. In particular **Robustness of steady-state optimality in economic model predictive** Economic model predictive control with self-tuning terminal cost Cooperative control of dynamically decoupled systems via distributed model predictive Distributed and economic model predictive control: beyond setpoint stabilization. **Distributed and Economic Model Predictive Control: Beyond** In this thesis, we study model predictive control (MPC) schemes for control tasks which go beyond the classical objective of setpoint stabilization. In particular **Matthias A. Muller - Google Scholar Citations** In this thesis, we study model predictive control (MPC) schemes for control tasks which go beyond the classical objective of setpoint

stabilization. In particular **Distributed and Economic Model Predictive Control: Beyond** respect to a given setpoint or reference trajectory. However, economic MPC control law asymptotically stabilizes such a setpoint. stability results can be obtained [46,8]. The goal of .. In this section, we show that beyond the robustness results of Section . presented results in a distributed economic MPC framework. **Generalized Stabilizing Conditions for Model Predictive Control** Distributed and economic model predictive control: beyond setpoint stabilization. Von der Fakultat Konstruktions-, Produktions- und Fahrzeugtechnik und dem Aug 29, 2014 tube-based stabilizing MPC to an economic MPC framework might not be the optimal choice in terms stabilize a given setpoint or trajectory to be tracked. In such a setting .. any a priori knowledge about the distribution of the disturbance, . approaches are beyond the scope of this paper and are content. **Distributed and economic model predictive control. beyond setpoint** Buy Distributed and Economic Model Predictive Control: Beyond Setpoint Stabilization at . **Awards - ECC16 - European Control Conference** Beyond Setpoint Stabilization pdf. Read online DISTRIBUTED AND ECONOMIC MODEL PREDICTIVE CONTROL BEYOND SETPOINT. STABILIZATION pdf or