

F. A. C. C. Fontes (ffontes@math.uminho.pt), Departamento de Matemática para a Ciência e Tecnologia, Universidade do Minho, 4800-058 Guimarães, Portugal, *Continuous-Time Model Predictive Control and Discontinuous Feedback Stabilization*

Model Predictive Control (MPC) is an optimization-based control technique that has received an increasing research interest and has been widely applied in industry. Despite that, most continuous-time MPC approaches reported in literature assume continuity of the generated feedback law. Therefore, they cannot be used to stabilize important classes of nonlinear systems, such as nonholonomic systems, which frequently appear in robotics and other applications. In this talk we describe how a continuous-time MPC framework using a positive inter-sampling time, combined with the use of an appropriate concept of solution to a differential equation, can address nonholonomic systems. The main features required for stability of such framework are reviewed. Finally, the synthesis of robust stabilizing controls under structured uncertainty is discussed.