

1124-49-241

Michele Palladino* (mup26@psu.edu), Penn State University, Mathematics Department, State College, PA 16802. *Minimum Time Problem for the Controlled Sweeping Process.*

In this talk, we address some recent advances in Dynamic Optimization for the Controlled Sweeping Process (also known in the literature as Moreau's process)

$$(\star) \quad \dot{x} \in -N_{C(t)}(x) + f(t, x, u), \quad u \in U$$

where $C(\cdot)$ is a Lipschitz continuous set-valued mapping. Such a framework is a general way to model optimal control problems with state constraints depending on time, but it also arises in many other applications like crowd motion, electric circuit and mechanical system modelling. Here we present a minimum time problem related (\star) and we characterize the minimum time function $T(t, x)$ as the continuous solution of a set of Hamilton-Jacobi inequalities. The main difficulty is due to the presence of the normal cone $N_{C(t)}(x)$ in the right hand side of (\star) , which is a not Lipschitz continuous mapping with respect to x and contains implicitly the state constraint $x(t) \in C(t)$. (Received September 10, 2016)