

Discontinuous time-dependent optimal control problems and Hamilton-Jacobi equations

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We consider a class of optimal control problems in which the dynamic constraint is expressed in terms of a differential inclusion and an integral term appears in the cost functional to minimize. The velocity set and the Lagrangian are supposed time-dependent and discontinuities (w.r.t. the time variable) are allowed on a zero-measure set. In this context we provide a characterization of the value function as the unique generalized solution to the Hamilton Jacobi Equation satisfying a suitable boundary condition. Problems with state constraints are also discussed.