First Joint Meeting Brazil Italy of Mathematics
Special Session: Optimal Control

Rio de Janeiro, August 29 - September 02, 2016

Title: Fully Convex Impulsive Control problems

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Abstract: Fully convex optimal control problems are such that the Lagrangian is jointly convex in the state and the velocity variables. A Hamilton-Jacobi (HJ) theory was developed by Rockafellar and the second author under coercivity assumptions and with the absence of state constraints. Coercivity and the effective domain of the conjugate are dual concepts, and in this context, should be treated equally. We sketch how HJ theory can be extended to this broader context by allowing arcs to have jumps (impulses) and be restricted by a state constraint. The main idea is to approximate both the dual and primal problems by the self-dualizing inf-convolution of Goebel, a technique that preserves the duality structure. Thus earlier results can then be applied to the approximations, and passing to the limit leads to a HJ theory for impulsive problems.