

HÖLDER CONTINUITY OF ADJOINT STATES AND OPTIMAL CONTROLS UNDER STATE CONSTRAINTS

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We investigate Hölder regularity of adjoint states and optimal controls for a Bolza problem under state constraints. We start by considering any optimal solution satisfying the constrained maximum principle in its normal form and we show that whenever the associated Hamiltonian function is smooth enough and have some monotonicity properties in the directions normal to constraints, then both the adjoint state and optimal trajectory enjoy Hölder type regularity. More precisely, we prove that if the state constraints are smooth, then the adjoint state and the optimal trajectory are Hölder continuous, while they are both side lower Hölder continuous for less regular constraints. Finally, we provide sufficient conditions for Hölder type regularity of optimal controls.