

On the numerical verification of optimality conditions for optimal control problems

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Optimality conditions are the base of all numerical methods. For instance, the first-order necessary optimality conditions can be solved by Newton-type algorithms. The second-order sufficient optimality condition (definiteness, coercivity) ensure the local quadratic convergence of such methods. However, the verification of second-order sufficient optimality condition is still a challenge.

In this talk, we will shed light on the numerical verification of optimality conditions. We will present interesting cases where numerical solutions guarantee the existence of a solution of the undiscretized problem in a well determined neighborhood of the numerical solution.

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