

# SUFFICIENT OPTIMALITY CONDITIONS FOR THE MOREAU-YOSIDA-TYPE REGULARIZATION CONCEPT APPLIED TO SEMILINEAR ELLIPTIC OPTIMAL CONTROL PROBLEMS WITH POINTWISE STATE CONSTRAINTS\*

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## Abstract

We develop sufficient optimality conditions for a Moreau-Yosida regularized optimal control problem governed by a semilinear elliptic PDE with pointwise constraints on the state and the control. We make use of the equivalence of a setting of Moreau-Yosida regularization to a special setting of the virtual control concept, for which standard second order sufficient conditions have been shown. Moreover, we present a numerical example, solving a Moreau-Yosida regularized model problem with an SQP method.

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