Second-order sufficient conditions for optimal control of non-smooth, semilinear equations

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This talk is concerned with an optimal control problem governed by a non-smooth, semilinear elliptic PDE. The nonlinearity in the state equation is only directionally differentiable, locally Lipschitz continuous, and is allowed to have infinitely many non-differentiable points. By employing its limited properties, Bouligand-differentiability of the control-to-state map is shown. This enables us to establish second-order sufficient optimality conditions.

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