



Webinar

Systems and Control Group - CIDMA

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Departamento de Matemática, Universidade de Aveiro

Analytical solution of a non-smooth optimal control
problem applied to irrigation

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Abstract

We consider an optimal control problem whose dynamic is described via field capacity modes. Its formulation guarantees that the field crop is kept in a good state of preservation, by considering that $x(t) \geq x_{\min}$ for all instant of time t under study, where x and x_{\min} represent the quantity of water in the soil and the hydrological need of the crop, respectively. Control u is the water flow introduced in the soil via irrigation. As it is very hard to obtain the general analytical solution of such problem, we propose several possible solutions with respect to x . For each scenario, we construct the analytical solution, by applying necessary optimality conditions. An illustrative example is considered, making use of the analytical results, to validate (partially) the computed solution.

Online session: <https://videoconf-colibri.zoom.us/j/86821172545>

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