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DE LA SANTISIMA CONCEPCION**

**Seminario del Departamento de
Matemática y Física Aplicadas
Facultad de Ingeniería**

**“Conical regularization of state-constrained elliptic control by using an
integral representation of the cone of positive continuous functions”**

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Abstract

By conical regularization of abstract constrained optimization problem we understand those methods which construct a family of approximate problems by replacing the constraint cone by an approximating family of cones. These methods are specially indicated for those problems where KKT conditions are not available or such that the associated multipliers exhibit lowregularity. In particular these methods are indicated to study state-constrained elliptic control problems. During the last years we have introduced some variants of these methods by using different families of cones. In this talk we focus on integral regularization methods (Systems Control Letters 61 (2012) 707-713). We give several estimates for the regularization error and we present some new results on the regularity and convergence of the regularized controls and associated Lagrange multipliers. Finally we show how we can apply these results in order to get numerical error estimates for a discretization of the original problem.

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