Optimal Harvesting Modelling

Report 1

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Abstract

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$$\min_{u \in U_{\text{ad}}} J(u) = \frac{1}{2} \|y - y_0\|^2_{L^2(\Omega)} + \frac{\alpha}{2} \|u\|^2_{L^2(\Omega)} \tag{P}$$

subject to,

$$-Ay + \phi(y) = u \qquad \text{in } \Omega, \tag{2.1}$$
$$y = 0 \qquad \text{on } \delta\Omega \tag{2.2}$$

and the pointwise constraints,

$$u_a \leq u(x) \leq u_b \qquad \text{for almost every } x \in \Omega, \tag{2.3}$$
$$y_a(x) \leq y(x) \leq y_b(x) \qquad \forall x \in K \subset \Omega, \tag{2.4}$$

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