

Full Stability for a Class of Control Problems of Semilinear Elliptic Partial Differential Equations

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Abstract: We investigate full Lipschitzian and full Hölderian stability for a class of control problems governed by semilinear elliptic partial differential equations, where all the cost functional, the state equation, and the admissible control set of the control problems undergo perturbations. We establish explicit characterizations of both Lipschitzian and Hölderian full stability for the class of control problems. We show that for this class of control problems the two full stability properties are equivalent. In particular, the two properties are always equivalent in general when the admissible control set is an arbitrary fixed nonempty, closed, and convex set.

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