

Active Control of some Shells using the Coordinate-Free Approach

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In this presentation we will present the latest developpements in the use of Partial Differential Equations for active control within the context of coordinate-free intrinsic shell models. The aim of the method, introduced by Michel Delfour and Jean-Paul Zolésio, is to produce a coordinate free version of the shell equations, in contrast to the classical equations which require explicit representation of the nonconstant coefficients. With the intrinsic approach, one can exploit the underlying geometry of the shell to derive equations in which the nonconstant coefficients are written in the form of tangential operators. This enables us to better modify and apply known techniques that were developed for use in the constant-coefficient case (flat plate models). This work continues the development of the model introduced so far. We will present an improved modeling which improved the way the curvature is taken into account.