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Superconvergence scheme of a locking free FEM in a Timoshenko optimal control problem*

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Abstract

In this work we analyze the numerical approximation of an optimal control problem of a Timoshenko beam, by considering two kind of distributed control: on the displacements and/or on the rotations. The discretization of the control variables is using piecewise constant functions. The state and the adjoint state are discretized by a locking free scheme of linear finite elements. An interpolation postprocessing technique is used to the approximations of the optimal solution of the continuous optimal control problem. It is proved that these approximations have superconvergence order h^2.

References

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