Piezoelectric Shell Finite Element Model and Reduction

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Abstract. In this work, we focus on the integration of a piezoelectric shell element into MultiFEM software, which can be used to create high-order numerical models of complex piezoelectric structures. Various model order reduction methods can then be used to efficiently lower the order of the large-scale numerical model while maintaining adequate accuracy. We aim to build a feasible connection between high-order numerical models and reduced-order models of piezoelectric structures, which will be implemented in the MultiFEM software, enabling simple control design and dynamic analysis.

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