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# NUMERICAL TREATMENT OF THE VECTORIAL EQUATIONS OF SOLAR OSCILLATIONS

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The Galbrun's equation with additional rotational and gravitational terms model stellar oscillations. Recently, HDG numerical methods for the related scalar case, a convected Helmholtz equations, have been devised and analysed in [1]. Furthermore, in [2], it was shown that the vector valued problem is well-posed, when incorporating a simple damping term. A suitable generalized Helmholtz decomposition plays a crucial role in the analysis. In the discretization, we aim to preserve a discrete version of the generalized Helmholtz decomposition, which is crucial for stability and helpful for the numerical analysis. We present an $H(\mathrm{div})$-conforming numerical method that respects the structural properties of the continuous problem and introduce the tools needed for the numerical analysis.

## REFERENCES

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