**Title:** Frequency domain Bernstein-Bézier finite element solver for modelling short waves - Applications to elastic and Maxwell wave simulations

**Abstract:** This work presents a high-order Bernstein-Bézier finite element discretisation to accurately solve time harmonic elastic wave problems. It also presents an investigation of the high-order H(curl)-conforming Bernstein-Bézier finite element method for high-frequency time-harmonic Maxwell wave simulations. The performance of the methods is evaluated using several numerical benchmarks, over a wide range of frequencies, carried out on a set of unstructured triangular mesh grids.