# VEM approximation for the Stokes eigenvalue problem: a priori and a posteriori error analysis

*Wednesday, 11 January 2023 17:00 (1 hour)*

We present an inf-sup stable divergence free virtual element method and associated a priori, and a posteriori error analysis to approximate the eigenvalues and eigenfunctions of the Stokes spectral problem in one shot. For the a priori analysis, we take advantage of the compactness of the solution operator to prove convergence of the eigenfunctions and double order convergence of eigenvalues. Additionally we also propose an a posteriori estimator of residual type, which we prove is reliable and efficient, in order to perform adaptive refinements that allow to recover the optimal order of convergence for non smooth eigenfunctions. We report some numerical tests

**Primary author:**   LEPE, Felipe (DMAT UBB)

**Presenter:**   LEPE, Felipe (DMAT UBB)