

1162-41-195

Tatyana Sorokina* (tsorokina@towson.edu), 8000 York Rd, Towson, MD 21093. *Conforming harmonic finite elements.*

Instead of using the full polynomial space, conforming finite element methods are designed where only harmonic polynomials (a much smaller space) are employed in the computation. The conforming quadratic harmonic polynomial finite element is defined only on a special triangular grid. The optimal order of convergence is proved, and confirmed by numerical computations. In addition, numerical comparisons with the standard conforming and nonconforming finite elements are presented. Joint work with S. Zhang. (Received August 31, 2020)