Some notes on the article "Convergence of an adaptive hp finite element strategy in higher space-dimensions"

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Abstract: The present work generalizes the refinement strategy proposed in a previous work to problems in two and three space-dimensions and presents numerical results of the application of this refinement strategy to some representative problems.

The authors show the convergence in the energy norm for an automatic h_p–adaptive refinement strategy for finite elements on the elliptic boundary value problem.

Key words and phrases: Convergence; Adaptive hp finite element strategy; Higher space-dimensions

Subject Classification: 65N30; 65N12

some remarks

1. interesting literature on the subject. I think, it is useful to read [SCH 98].
2. the present work is extension to the work [DOR 07] which dealt with one dimensional case. The present work treating the two and three dimensional case.

1 some information and what i have learned

1. the finite element method is a widely accepted tool for the numerical solution of partial differential equations.
2. the performance of the method can be improved by mesh refinement (h-refinement) or the use of higher order ansatz spaces (p-refinement).
3. taking a combination of both (hp-refinement) can lead to exponentially fast convergence with respect to the number of degrees of freedom

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