1086-65-1414   **Sara N Pollock*** (`snpolloc@math.ucsd.edu`). *Convergence of goal-oriented adaptive finite element methods for semilinear problems.*

We will discuss a goal-oriented adaptive finite element method for second order semilinear PDEs. In goal-oriented methods we are concerned with approximating a given quantity of interest, a function of the weak solution to the PDE. The adaptive algorithm is driven by estimating the error in both the primal and a dual problem at each iteration. We will discuss the formation of the linearized dual sequence, the limiting dual problem and approximate dual sequence, and how each plays a part in the contraction argument. We will look at the standard contraction framework and discuss some additional estimates used to show convergence in the sense of the quantity of interest. We will also introduce an appropriate notion of error to derive a strong contraction result. Finally we will look at some numerical experiments.

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