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HP Local Refinement Using FOSLS

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Local refinement enables us to work harder in areas that need special attention (e.g. singularities) and work less in areas that have little action. In order to use local refinement efficiently, it is important to be able to quickly calculate some relavent error on each element, and give some a priori error estimate. FOSLS is an ideal method to use for this because the FOSLS functional easily expresses the error for each element, and there is a good a priori error estimate. The talk will discuss different criterion for choosing refinement, and how to determine the most efficient (work/computaional cost) refinement strategy. There will also be discussion concerning parallel implementation.