Variational Localizations of Error Estimators with Application to Complex Multiphysics Problems

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Focus of this presentation will be a localization technique for goal oriented error estimators. The resulting local error indicators can be used for local mesh adaptivity. The simple idea behind the localization is to introduce a partition of unity into the variational residual. The local error indicators can be computed without jumps over element edges and also without strong residuals. While edge jumps can be cumbersome to evaluate, strong residuals may not even be available for the adjoint systems of complex problems. For elliptic problems, we can show, that the sum of local indicators is bound by local products of primal and adjoint energy norm errors.

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