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Asymptotic meshes from r-variational adaptation methods for static problems

Monday, 20 October 2025 15:00 (1 hour)

We consider the minimization of integral functionals in one dimension and their approximation by r-adaptive finite elements. Including the grid of the FEM approximation as a variable in the minimization, we are able to show that the optimal grid configurations have a well-defined limit when the number of nodes in the grid is being sent to infinity. This is done by showing that the suitably renormalized energy functionals possess a limit in the sense of Gamma-convergence. We also show some numerical results that demonstrate the convergence in practice.
Joint work with Darith Hun and Nicolas Moës (both UCLouvain).

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