Optimal mesh hierarchies in Multilevel Monte Carlo methods

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We will discuss how to choose optimal mesh hierarchies in Multilevel Monte Carlo (MLMC) simulations based on uniform discretization methods with general approximation orders and computational costs. We will compare optimized geometric and non-geometric hierarchies and discuss how enforcing some domain constraints on parameters of MLMC hierarchies affects the optimality of these hierarchies. We also discuss the optimal tolerance splitting between the bias and the statistical error contributions and its asymptotic behavior.

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