Adaptive Approximation at Work

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Abstract

Adaptivity is a key concept in the field of Scientific Computing. In this talk we shall discuss the use of certain adaptive techniques in different scenarios. We shall describe various data-dependent, adaptive reconstruction techniques used in numerical analysis in order to improve accuracy in the presence of discontinuities, their application to shock computations and their potential as prediction tools in multi-scale data representations and recursive subdivision. The link with wavelet representations will also be discussed, as well as the potential, and limitations, of nonlinear subdivision schemes in data compression.