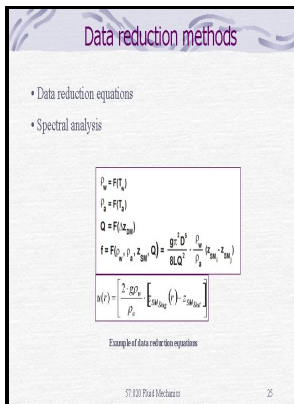# Spectral methods in fluid dynamics

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The success of spectral methods in practical computations has led to an increasing interest in their theoretical aspects, especially since the mid-1970s. Computer Methods in Applied Mechanics and Engineering 80 1990 pp. Mathematical Aspects of Domain Decomposition Methods -- 13.

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Morton Oxford University Press, London, 1993 pp. Spectral Accuracy for a Two-Dimensional Fluid Calculation -- 1. In contrast, spectral method have global approximation property.

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To counteract the aliasing term, we must add a viscosity term or filter to stabilize the method. The authors also present complete algorithms for Poisson's equation, linear hyperbolic systems, the advection diffusion equation, isotropic turbulence, and boundary layer transition. Fully multidimensional flux-corrected transport algorithms for fluids.

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Spectral Methods

Some Standard Schemes -- 4. Furthermore, the design and construction of these experiments can be difficult and costly , particularly for stratified rotating flows. This book does not address specific applications in meteorology, partly because of the lack of experience of the authors in this field and partly because of the coverage provided by Haltiner and Williams 1980.

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