

Theory and computation of hydrodynamic stability

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Abstrak

The study of hydrodynamic stability is fundamental to many subjects, ranging from geophysics and meteorology through to engineering design. This treatise covers both classical and modern aspects of the subject, systematically developing it from the simplest physical problems, then progressing to the most complex, considering linear and nonlinear situations, and analyzing temporal and spatial stability. The authors examine each problem both analytically and numerically. Many relevant fluid flows are treated, including those where the fluid may be compressible, or those from geophysics, or those that require salient geometries for description. Details of initial-value problems are explored equally with those of stability. The text includes copious illustrations and an extensive bibliography, making it suitable for courses on hydrodynamic stability or as an authoritative reference for researchers. In this second edition the opportunity has been taken to update the text and, most importantly, provide solutions to the numerous extended exercises.