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## Film Flows, Wave Instabilities and Thermocapillarity

This monograph provides a detailed review of the state-of-the-art theoretical (analytical and numerical) methodologies for the analysis of dissipative wave dynamics and pattern formation on the surface of a film falling down a planar, inclined substrate. Particular emphasis is given to low-dimensional approximations for such flows through a hierarchy of modeling approaches, including equations of the boundary-layer type, averaged formulations based on weighted residuals approaches, and long-wave expansions.
Whenever possible, the link between theory and experiments is illustrated and, as a further bridge between the two, the development of order-of-magnitude estimates and scaling arguments is used to facilitate the understanding of the underlying basic physics.

The book will be of particular interest to advanced graduate students in applied mathematics, science or engineering undertaking research on interfacial fluid mechanics or studying fluid mechanics as part of their program; researchers working on both applied and fundamental theoretical and experimental aspects of thin film flows; and engineers and technologists dealing with processes involving thin films, either isothermal or heated.
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2009. Approx. 600 p. 180 illus. Hardcover

- ca. \$ 89.95

ISBN: 978-1-84882-366-2
Forthcoming


