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Nota di contenuto	Physical foundations and mathematical models -- Analytical Methods -- Symmetry analysis of boundary layer -- Analytical modelling of film condensation -- Analytical modeling and symmetry analysis -- Instantaneous transition to film boiling in ordinary -- Instability of a Vapor Layer on a Vertical Surface -- Centrifugal Instability in Flows of Nanofluids -- Summary.
Sommario/riassunto	This book presents step-by-step description of the use of Lie group analysis to find symmetry forms and similarity solutions for single- and two-phase laminar and turbulent flows of nanofluids. It outlines novel

and unique analytical solutions validated via comparisons with experimental data. The main part of the book is devoted to analytical modeling of film condensation of still and moving vapor with nanoparticles, stable film boiling of nanofluids, instantaneous unsteady boiling and condensation of nano- and ordinary fluids and clarification and quantification of instability conditions in the vapor layer, as well as centrifugal and Dean instability in nanofluids. It was demonstrated that such complex phenomena can be successfully simulated using the proposed approaches validated via reliable experiments. The book is intended for scientists, engineers, graduate and undergraduate students specializing in the area of engineering thermodynamics, heat and mass transfer and energy systems.