1.	Record Nr.	UNINA9910457420503321
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	Titolo	Hydrodynamic fluctuations in fluids and fluid mixtures [[electronic resource] /] / by Jose M. Ortiz de Zarate, Jan V. Sengers
	Pubbl/distr/stampa	Amsterdam, : Elsevier, 2006
	ISBN	1-280-64157-6 9786610641574 0-08-045943-9
	Edizione	[1st ed.]
	Descrizione fisica	1 online resource (320 p.)
	Altri autori (Persone)	SengersJ. V
	Disciplina	532.05
	Soggetti	Hydrodynamics Nonequilibrium thermodynamics Thermodynamics Electronic books.
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Description based upon print version of record.
	Nota di bibliografia	Includes bibliographical references and index.
	Nota di contenuto	Cover; Contents; Introduction; Nonequilibrium thermodynamics; Local thermodynamic properties; Equilibrium thermodynamics; Continuum hypothesis and the assumption of local equilibrium; Balance laws; Mass balance; Pressure tensor; Momentum balance; Energy balance; Additional remarks; Entropy balance, dissipative Fluxes and thermodynamic forces; Phenomenological relations; Onsager's reciprocal relations; Hydrodynamic equations; Hydrodynamic equations for a one-component Fluid; Hydrodynamic equations for a binary mixture; Boundary conditions Conditions at the interface between two continuous mediaA flat horizontal fluid boundary; Fluctuations in fluids in thermodynamic equilibrium; Fluctuating hydrodynamics; Fluctuation-dissipation theorem for Fluids and Fluid mixtures; Fluctuation-dissipation theorem for a one-component Fluid; Fluctuation-dissipation theorem for a binary mixture; Hydrodynamic fluctuations in a one-component Fluid; Structure factor; Equal-time correlations; Equilibrium correlation functions and entropy probability functional; Extension of fluctuating hydrodynamics to nonequilibrium steady states

Thermal nonequilibrium fluctuations in one-component fluidsBoussinesq approximation; Bulk structure factor in the presence of a stationary temperature gradient; Nonequilibrium e.ects on the Brillouin doublet; Nonequilibrium fluctuations in heat conduction; Thermal nonequilibrium fluctuations in fluid mixtures; Linearized fluctuating Boussinesq equations for a binary liquid; The linear stability problem; Structure factor in a large-Lewis-number approximation; Comprehensive structure factor of a nonequilibrium binary mixture; Nonequilibrium .uctuations in isothermal free-di.usion processes

Finite-size effects in hydrodynamic fluctuationsThe hydrodynamic operator; Structure factors; Hydrodynamic modes and decay rates for two free boundaries; Hydrodynamic modes and decay rates for two rigid boundaries; Decay rates for rigid boundaries in the limit of small q; Decay rates for rigid boundaries in the limit of large q; The slowest decay rate; Thermal nonequilibrium fluctuations in one-component-fluid layers; A fluid confined between two free boundaries; A fluid confined between two rigid boundaries

Limiting behavior of the structure factor for rigid boundaries at small and large wave numbersA Galerkin approximation for two rigid boundaries; Correlations in real space; Contribution of nonequilibrium fluctuations to heat transfer; Thermal fluctuations close to the Rayleigh-Benard instability; Critical slowing down of nonequilibrium fluctuations; The most-unstable-mode approximation; The Swift-Hohenberg approximation; Power of thermal fluctuations; Wave number of maximum enhancement of .uctuations; Wave number fluctuations with maximum growth rate

Thermal nonequilibrium fluctuations in binary-fluid layers

Sommario/riassunto	This book deals with density, temperature, velocity and concentration fluctuations in fluids and fluid mixtures. The book first reviews thermal fluctuations in equilibrium fluids on the basis of fluctuating hydrodynamics. It then shows how the method of fluctuating hydrodynamics can be extended to deal with hydrodynamic fluctuations when the system is in a stationary nonequilibrium state. In contrast to equilibrium fluids where the fluctuations are generally short ranged unless the system is close to a critical point, fluctuations in nonequilibrium fluids are always long-ranged encompassing th