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Titolo	Dynamics of Multiphase Flows Across Interfaces [[electronic resource] /] / edited by Annie Steinchen
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Soggetti	Thermodynamics Mechanics Mechanics, Applied Statistical physics Dynamical systems Fluids Physical chemistry Theoretical and Applied Mechanics Complex Systems Fluid- and Aerodynamics Physical Chemistry Statistical Physics and Dynamical Systems
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Nota di contenuto	Balance equations for fluid curvilinear media -- The second gradient theory applied to interfaces: Models of continuum mechanics for fluid interfaces -- Asymptotic modelling of fluid-fluid interfaces -- Surface excess momentum balances by integration across the surface of the volume balances -- Extended irreversible thermodynamics: Towards a non-local formulation -- Transient surface properties of liquid bridge and pendant drop menisci in gravity and low gravity -- Bénard-Marangoni instability in a rotating liquid layer with a deformable free surface -- Balance equations and the problem of constitutive relations in varied dimensions curvilinear media -- Some preliminary results

about equilibrium surface model -- Experimental study of the convective phenomena during the evaporation of aqueous solutions of sucrose -- Experimental study of the competition between convective rolls in an enclosure -- Surface deflection in Bénard-Marangoni convection -- Cooling of small electronic devices by boiling under microgravity -- Modelling of transient boiling in microgravity -- Surface dynamics of surfactant solutions -- The capillary pressure method: A new tool for interfacial tension measurements -- Effects of evaporation-cond ensation on thermocapillary convection -- Behaviour of the liquid between a solid particle and an approaching crystallization front: Forces balance -- Disintegration of cylindrical liquid columns in liquid-fluid systems: Direct numerical simulation -- Microwave heating as a tool for coupling Marangoni and Hickman instabilities -- Pool boiling with an imposed electric field: Main results of a theoretical and experimental research -- Toward a non-equilibrium non-linear thermodynamics.

Sommario/riassunto

Written for researchers and advanced students the book exhibits a combination of various methods and tools required to describe the complexity of the chemical and physical behaviour of fluid surfaces. The common denominator for all the contributions presented here is the simultaneous use of concepts from surface chemistry and physics and from hydrodynamics where external force fields can be introduced. Theoretical and experimental work is equally represented. Most of the basic problems in the area of nonequilibrium multiphase systems have not yet received extensive treatment. This volume should be a reference for physicists, physico-chemists, and chemical engineers and will serve as a jumping-off point for new directions and new points of view.