



ANNUAL LITERATURE SURVEY 1996: MULTIPHASE FLOW Generated from the FLUIDEX database

33rd National Heat Transfer Symposium of Japan. Proceedings of the symposium, Niigata, May 1996, Volume 2

Japan Heat Transfer Society, (Japan Heat Transfer Society), *33rd National Heat Transfer Symposium of Japan. Proceedings of the symposium, Niigata, May 1996, Volume 2*, 1996, (203 p.). In English.

This volume contains 102 papers presented at the National Heat Transfer Symposium of Japan. They are divided into numerous sections, the titles of which include: enhancement of convective heat transfer; radiation heat transfer; modelling and numerical analysis of two-phase flow; visualization and measurement of two-phase flow; film boiling; heat exchangers; heat transfer in combustion; heat pumps and refrigeration.

33rd National Heat Transfer Symposium of Japan. Proceedings of the symposium, Niigata, May 1996, Volume 3

Japan Heat Transfer Society, (Japan Heat Transfer Society), *33rd National Heat Transfer Symposium of Japan. Proceedings of the symposium, Niigata, May 1996, Volume 3*, 1996, (287 p.). In English.

This volume contains 144 papers presented at the National Heat Transfer Symposium of Japan. They are divided into numerous sections, the titles of which include: heat transfer in rotating fields; heat transfer in separated flow; impinging jets and film cooling; evaporation heat transfer; condensation heat transfer; heat transfer in porous media; fluid flow and heat/mass transfer under microgravity; hydrodynamics and heat transfer in two-phase flow and natural convection around bodies.

Advances in sensors for fluid flow measurement. Proceedings of a colloquium, London, April 1996

ed Beeston J.W., (Institution of Electrical Engineers; Digest No. 96/092), *Advances in sensors for fluid flow measurement. Proceedings of a colloquium, London, April 1996*, 1996. In English.

The colloquium which is presented in this volume was organized by three professional groups of the IEE: instrumentation systems and components; hardware and systems engineering; measurements and instruments. There are fifteen papers and their titles include: multiphase flow measurement, current and future developments; an electromagnetic flowmeter for measuring rheological parameters and reconstructing the flow profile; a novel ultrasonic mass flowmeter for liquids; three phase pipe flow imaging using a capacitance tomography system and measurement of multiple velocities in multiphase flow.

Hydrodynamic characteristics of a three-phase inverse fluidized-bed column

Ibrahim Y.A.A., Briens C.L., Margaritis A. & Bergongnou M.A., *AIChE Journal*, 1996, 42/7 (1889-1900). In English.

Gas-liquid-solid inverse fluidized beds were studied, in which the gas and the continuous liquid phase flow countercurrently fluidizing particles that are lighter than the liquid. Conductivity and static pressure measurements were combined to provide the vertical profiles of the gas, liquid and solid holdup, in beds of 4- or 6-mm polypropylene particles with a density of about 870 kg/m³. Various bed heights were obtained with different measurement methods. The minimum fluidization velocity was estimated using the bed static pressure gradient. A new transition velocity, called the uniform fluidization velocity, was identified using conductivity measurements. This is the superficial liquid velocity at which the fluidization quality becomes the same throughout the bed.

Extraction of spray particles with supercritical fluids in a two-phase flow

Wagner H. & Eggers R., *AIChE Journal*, 1996, 42/7 (1901-1910). In English.

A new process for extractive separation with supercritical fluids is described. It is characterized by mixing a liquid feed with a dense gas in a special mixing device and the formation of spray particles when this mixture is injected into an extraction zone where the fluid phase is loaded with the extracts. By dividing the extraction into two process steps, mixing and loading, it is possible to adjust the devices and the apparatuses for different media. Two different materials were tested in an apparatus on a semiindustrial scale with different mixing devices and extraction zones. By measuring fluid loading in the extraction zone, the mass-transfer parameter of a mathematical extraction model could be adapted. The model considers particle formation in the mixing zone, the fluid dynamic in the loading zone, and the mass transfer between spray particles and fluid phase. Calculated concentration profiles make it possible to determine the residence time and the size of the extraction zone for given geometries and fluid dynamics.

Estimation of three-phase flow functions in porous media

Mejia G.M., Watson A.T. & Nordtvedt J.E., *AIChE Journal*, 1996, 42/7 (1957-1967). In English.

Several important processes involve the flow of three immiscible fluids through porous media, such as the flow of oil, water and gas in petroleum reservoirs, or water, non-aqueous phase liquid and air in underground