Measurements are presented for the shedding rate of liquid from slugs created by the flow of air and water in a horizontal 0.0953 m pipe at atmospheric conditions. These are used to predict a critical liquid carpet height below which slugs will decay. Of particular interest is the finding that the initiation of the slug flow regime at high gas flows is related to the stability of slugs, rather than the stability of a stratified flow.

Characterization of two-phase flows using fractal analysis of local temperature fluctuations
Kozma R., Kok H., Sakuma M., Djainal D.D. & Kitamura M., *International Journal of Multiphase Flow*, 1996, 22/5 (953-968). In English.

This works deals with the characteristics of two-phase flows based on fractal techniques in order to develop objective flow regime indicators. The fractal dimension of measured time series have been evaluated by Higuchi's method. It is shown that the error of the linear fit of the fractal dimension is a sensitive indicator of the changes in the flow regime, while the fractal dimension value itself is less suitable for flow regime identification. The developed method has been applied to the evaluation of two-phase flow experiments at the SIDAS boiling loop.

Experimental study of a two-phase bubbly flow in a flat duct symmetric sudden expansion - part 1. visualization, pressure and void fraction
Aloui F. & Souhar M., *International Journal of Multiphase Flow*, 1996, 22/4 (651-665). In English.

The present work involves an experimental study of bubble flow in a flat horizontal sudden expansion. This study consists of two parts which are interdependent and complementary. Here in the first part, the qualitative study by visualization shows that the bubble flow changes from a dissymmetric configuration to a symmetric configuration beyond a certain volumetric quality.

A first order relaxation model for the prediction of the local interfacial area density in two-phase flows
Millies M., Drew D.A. & Lahey R.T. Jr, *International Journal of Multiphase Flow*, 1996, 22/6 (1073-1104). In English.

It is the purpose of this paper to present a first order relaxation model which is derived from the Boltzmann transport equation, and which accurately describes the evolution of interfacial area density for bubbly flows. In particular, the local, instantaneous interfacial area densities and volume fractions are predicted for vertical flow of a vapor/liquid bubbly flow involving both bubble clusters and individual bubbles.

An interfacial friction correlation for shell-side vertical two-phase cross-flow past horizontal in-line and staggered tube bundles
Rahman F.H., Gebbie J.G. & Jensen M.K., *International Journal of Multiphase Flow*, 1996, 22/4 (753-766). In English.

A correlation is presented for the interfacial friction factor between the gaseous and liquid phases in vertical two-phase flows past horizontal in-line and staggered tube bundles. The interfacial friction data were determined from pressure drop, void fraction, and mass flux data taken by Dowlati et al. (1990, 1992b) and Schrage et al. (1988). These data were correlated using two non-dimensional quantities: a Reynolds number based on the mixture density and relative velocity between the two phases, and the porosity of the tube bundle.

Two-phase stratified flow splitting at a T-junction with an inclined branch arm
Penmatcha V.R., Ashton P.J. & Shoham O., *International Journal of Multiphase Flow*, 1996, 22/6 (1105-1122). In English.

The objective of this study is to investigate, experimentally and theoretically, two-phase splitting under stratified wavy flow conditions at a regular horizontal T-junction with an inclined branch arm. Experimental data reveals that gravity forces have a significant effect on the flow splitting. For downward inclination of the side arm more liquid is diverted into the branch arm, as compared to the case in which the side arm was horizontal. A mechanistic model has been developed for the prediction of the splitting phenomenon for both the horizontal and the downward orientations of the side arm. The model is based on the momentum equations applied for the separation streamlines of the gas phase and the liquid phase. Very good agreement is observed between the prediction of the model and the data acquired for all the cases.

Large eddy simulation of particle deposition in a vertical turbulent channel flow
Wang Q. & Squires K.D., *International Journal of Multiphase Flow*, 1996, 22/4 (667-683). In English.

The deposition of particles in fully-developed turbulent channel flow has been calculated using large eddy simulation of the incompressible Navier-Stokes equations. Calculations were performed for Reynolds numbers of 11 160 and 79 400 (based on bulk velocity and hydraulic diameter); subgrid-scale stresses were parameterized using the dynamic eddy viscosity model. Particle motion was governed by both drag and lift. The effect of particle-particle interactions as well as modification of the turbulent carrier flow by the particles was neglected.

Bottom bed regimes in a circulating fluidized bed boiler
Svensson A., Johnsson F. & Leckner B., *International Journal of Multiphase Flow*, 1996, 22/6 (1187-1204). In English.

This paper extends previous work on the fluidization regimes of the bottom bed of circulating fluidized bed (CFB) boilers. Pressure measurements were performed to obtain the time-averaged bottom bed voidage and to study the bed pressure fluctuations. Two bubbling regimes were identified: a 'single bubble regime' with large single bubbles present at low fluidization velocities, and, at high fluidization velocities, an 'exploding bubble regime' with bubbles often stretching all the way from the air distributor to the surface of the bottom bed. The exploding bubble regime results in a high through-flow of gas, indirectly seen from the low average voidage of the bottom bed, which is similar to that of a stationary fluidized bed boiler, despite the higher gas velocities in the