

## PREFACE

The thesis entitled "Studies on gas-liquid flow in an ejector induced downflow bubble column" is submitted herewith. In the present investigation careful studies have been carried out on the hydrodynamics of two-phase gas-liquid flow in a vertical pipeline contactor where an ejector is used as gas-liquid distributor. The efficiency of the present system is characterized by the self-entrainment of secondary gas by liquid jet ejector. Experiments have been carried out with both Newtonian and non-Newtonian liquids. Studies have also been carried out on gas-liquid mass transfer characteristics in the vertical column. An attempt has been made to analyze the experimental data of two-phase frictional pressure drop and gas holdup by the established models and correlations. Correlations were also developed to predict the gas entrainment, gas holdup, two-phase friction factor and frictional loss coefficients in terms of physical and dynamic variables of the system parameters. The experimental data have been found to agree well with the proposed models and correlations.

**AJAY MANDAL**