

6.2 Multiphase flow regimes

From a practical engineering point of view one of the major design difficulties in dealing with multiphase flow is that the mass, momentum, and energy transfer rates and processes can be quite sensitive to the geometric distribution or topology of the components within the flow. For example, the topology may strongly effect the interfacial area available for mass, momentum or energy exchange between the phases. Moreover, the flow within each phase or component will clearly depend on that geometric distribution. Consequently there is a complicated two-way coupling between the flow in each of the phases or components and the geometry of the flow (as well as the rates of change of that geometry). The complexity of this two-way coupling presents a major challenge in the analysis and prediction of multiphase flows.