



北京理工大学

数学与统计学院学术报告

Almost global existence and radiative decay of three dimensional spherical gas bubble inside inviscid compressible liquid

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摘要: In this talk, we consider the model of a homogeneous bubble inside an unbounded isentropic compressible inviscid liquid. The exterior liquid is governed by the compressible Euler equation while the free bubble surface is determined by the kinematic and dynamic boundary conditions on the bubble liquid interface. We first proved the local existence and uniqueness of the nonlinear system using energy methods under an iteration scheme. Then we proved the almost global existence of the solution and the radiative decay of bubble oscillation through a bootstrap argument encompassing a weighted $L_t^2 H_x^j$ estimate (Keel-Smith-Sogge estimate) and the analysis of the characteristics.