

THE RAYLEIGH-TAYLOR INSTABILITY GROWTH ON THE TOP SURFACE OF A BUBBLE RISING IN COAXIAL TUBES

Yu.B.Bazarov¹, A.S.Katorov³, E.E.Meshkov², O.V.Ol'khov¹, S.Yu.Sedov¹

¹RFNC-VNIIEF, Sarov

² SarFTI NINU "MIFI"

³ Lycée #15, Sarov

The motion of Taylor bubbles in a cylindrical channel with coaxial embedding was studied in the experiments conducted under the technique [1]. It has been experimentally demonstrated that two flow regimes are possible: 1) the "retraction" regime, when the bubble is completely retracted into the coaxial embedding; 2) the "splitting" regime, when the bubble is split into two fragments by the coaxial embedding. The critical cylinder dimensions at which the motion manner changed were experimentally determined. At the second regime some perturbations developed on the bubble fragment surface between the channels, while the bubble dome in the coaxial embedding remained stable. The work was supported by RFFI (Project 08-01-00807).

I.E.E.Meshkov, D.E.Meshkov, V.S. Sivolgin. Proc. 10th IWPCMTM, 2006, pp.238-243