The coefficient of restitution for air bubbles colliding against solid walls in viscous liquids ROBERTO ZENIT, Universidad Nacional Autonoma de Mexico, DOMINIQUE LEGENDRE, Institute de Mecanique des Fluides de Toulouse — The motion of air bubbles undergoing collisions with solid walls was studied experimentally. Using a high speed camera, the processes of approach, contact and rebound was recorded for a wide range of fluid properties. The process is characterized considering a modified Stokes number, $St^* = (C_{AM}\rho d_{eq} U_o)/(9\mu)$, which compares the inertia associated with the bubble (added mass) and viscous dissipation. We found that the dependence of the coefficient of restitution, $\epsilon = -U_{reb}/U_o$, with the impact Stokes number can be approximated by $\log \epsilon \sim (St^*)^{-1/2}$, which is different from that found for the case of solid spheres are fluid drops. A discussion of the nature of this dependence is presented.

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