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Numerical study on the drag coefficient for an ellipsoidal bubble with fore-aft asymmetry TOSHIYUKI SANADA, Shizuoka University, SHU TAKAGI[1], The University of Tokyo, TAKAYUKI SAITO, Shizuoka University — We evaluate the drag coefficient for ellipsoidal clean bubbles rising steadily at high *Re*. Flow fields and bubble shapes are obtained using a numerical simulation. The method is based on a finite-difference solution of the equation s of motion on an orthogonal curvilinear coordinate system [Takagi et al., *Phys. Fluids* (1994), Ryskin & Leal, *J. Fluid Mech.* (1984)]. The degree of fore-aft asymmetric bubble shape is quantitatively evaluated using Legendre polynomials. The numerically obtained drag coefficients are compared with those of experimental results. In addition, by comparing the drag coefficients with those for symmetric ellipsoidal bubble obtained analytically by Moore [*J. Fluid Mech.* (1965)], and via numerical simulation by Blanco & Magnaudet [*Phys. Fluids* (1995)], the effect of fore-aft asymmetry on a drag coefficient is evaluated. Furthermore the formation of the standing eddy at the rear of deformable bubbles is discussed.

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