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**Analytical and experimental analyses of the translation of microbubbles under short acoustic pulses** ELENA IGUALADA-VILLODRE, ANA MEDINA-PALOMO, JAVIER RODRIGUEZ-RODRIGUEZ, Carlos III University of Madrid — The translation of bubbles as a result of the primary Bjerknes force is studied both analytically and experimentally. In particular, we focus on the translational dynamics of bubbles under the effect of short acoustic pulses, i.e. pulses whose duration is of the order of the characteristic viscous time based on the bubble size. The experiments developed show that existing models widely used in the literature do not allow to properly reproduce the bubble velocity history. Given the comparison between analytical and experimental results, we can conclude that the viscous drag cannot be approximated by a constant drag coefficient when the time scale is of the order of the characteristic viscous time, as the history force becomes dominant. In other words, the history force is needed to correctly reproduce the experimental results. In this talk we will show analytical solutions of the bubble translational dynamics equation for both piece-wise constant and oscillatory forcing. This work has been supported by Spanish Ministries of Science and of Economy and Competitiveness through grants: DPI2008-06369 and DPI2011-28356-C03-02.

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