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**Bubbles in an isotropic homogeneous turbulent flow** F.E. MANCILLA, M. MARTINEZ, E. SOTO, G. ASCANIO, R. ZENIT, Universidad Nacional Autonoma de Mexico — Bubbly turbulent flow plays an important role in many engineering applications and natural phenomena. In this kind of flows the bubbles are dispersed in a turbulent flow and they interact with the turbulent structures. The present study focuses on the motion and hydrodynamic interaction of a single bubble in a turbulent environment. In most previous studies, the effect of bubbles on the carrier fluid was analyzed, under the assumption that the bubble size was significantly smaller than the smallest turbulence length scale. An experimental study of the effect of an isotropic and homogeneous turbulent flow on the bubble shape and motion was conducted. Experiments were performed in an isotropic turbulent chamber with nearly zero mean flow, in which a single bubble was injected. The fluid velocity was measured using the Particle Image Velocimetry (PIV) technique. The bubble deformation was determined by video processing of high-speed movies. The fluid disturbances on the bubble shape were studied for bubbles with different sizes. We will present experimental data obtained and discuss the differences among these results to try to understand the bubble - turbulence interaction mechanisms.

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