



Self-organization of laser induced bubbles under the influence of strong acoustic pressure fields in phosphoric acid

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In this talk we will discuss some basic characteristics of the temporal evolution of a cluster of bubbles initially arranged over a line while being driven by a strong acoustic excitation. The experimental results are mainly given by high-speed video recordings of a laser induced multi-bubble system in concentrated phosphoric acid. The videos shown a significant effect of the bubble interaction which leads to a self-organization in several small spherical clusters immediately after the bubble seeding. These sub-clusters are driven away from the acoustic pressure anti-node in the same way it occurs to single bubbles, producing a clear streamer. The role of the shape instabilities and the principal forces affecting both the individual and collective behaviour of the bubbles is analysed, and also compared with a series of preliminary results obtained from numerical simulations.

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