Net motion of acoustically levitating nano-particles: A theoretical analysis

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Recent studies [1] have indeed shown that quasi-spherical particles may undergo net propulsion, a feature partially understood theoretically in the particular case of infinite viscous boundary layers [2].

We here extend the theoretical results of [2] to any boundary layer thickness, by that meeting typical experimental conditions. In addition, we propose an explanation for the net spinning of the trapped particles, as observed in experiments [1].