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Pressures induced by collapsing cavitation bubbles near boundaries JOEL HARTENBERGER, RENAUD GAUDRON, ERIC JOHNSEN, STEVEN CECCIO, University of Michigan, Ann Arbor — A pulsed Nd:YAG laser was used to produce single cavitation bubbles both in the free field and near solid and compliant boundaries in a quiescent flow. High-speed videography was used to record the growth and collapse of these bubbles. Simultaneously, the local impulse created by the bubbles was measured using a needle hydrophone. The goal of the study is to determine how impulses are created during both the initial collapse of the bubble during re-entrant jetting flow and the final collapse of the bubble after jet impact. The needle probe was used to spatially and temporally resolve the creation of force normal to the surface of the boundary. Results will be used to validate numerical simulations of single cavitation bubble collapse testing several bubble dynamics models.

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