

Abstract Submitted
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The recreation of a unique shrimp's mechanically induced cavitation bubble¹ RYAN MILLER, CHRISTOPHER DOUGHERTY, VERONICA ELIASSON, GAURI KHANOLKAR, University of Southern California — The *Alpheus heterochaelis*, appropriately nicknamed the “pistol shrimp,” possesses an oversized claw that creates a cavitation bubble upon rapid closure. The implosion of this bubble results in a shock wave that can stun or even kill the shrimp's prey (Versluis et al., 2000). Additionally, the implosion is so violent that sonoluminescence may occur. This light implies extreme temperatures, which have been recorded to reach as high as 10,000 K (Roach, 2001). By developing an analogous mechanism to the oversized claw, the goal of this experiment is to verify that cavitation can be produced similar to that of the pistol shrimp in nature as well as to analyze the resulting shock wave and sonoluminescence. High-speed schlieren imaging was used to observe the shock dynamics. Furthermore, results on cavitation collapse and light emission will be presented.

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