

Abstract Submitted
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Performance based applications of the Ultrasound Contrast Agents in the bio-medical field PANKAJ JAIN, University of Delaware, KAUSIK SARKAR, University of Delaware — Ultrasound Contrast Agents are micron size bubbles encapsulated by nanometer-thick layer of surface active materials such as proteins and lipids. They are injected to patients to improve the quality of ultrasound images. They are also being used for drug delivery and arteriogenesis. We present results of *in-vitro* ultrasound investigation on two such contrast agents, Definity and Optison. We measure attenuation and scattering of ultrasound through emulsion of these agents. We investigate destruction of contrast agents and measure sub- and super-harmonic contents in their scattered response. Optison has a much lower threshold excitation level compared to Definity. Definity has a persistent sub-harmonic generation compared to Optison, for which the sub-harmonics go down above a certain pressure level. Both agents experiences transient bubble growth at lower excitation pressures due to increased permeability of the membrane to dissolved air outside. The results along with their implications on the applications such as drug delivery and imaging will be discussed.

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