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Numerical modeling of the impact of the propagation of a finite wave in a bubbly media on the Acoustic Bubble Spectrometer ABS©®. MICHEL TANGUAY, GEORGES CHAHINE, Dynaflow Inc — The propagation of acoustic waves in bubbly media has been extensively studied over the years. Several methods have been developed for the inversion of the propagation characteristics in order to compute the size and number of bubbles present in the field. At the core of these inversion methods are the assumptions that bubbles are homogeneously dispersed and behave in a steady-state monochromatic linear fashion. However, instruments designed for the detection and measurements of bubbles (such as Dynaflow's Acoustic Bubble Spectrometer ABS©®) are limited to the use of finite duration and amplitude signals. Consequently, the transient characteristics of the bubble field can provide a significant impact on the received signal. We will present some recent work in the numerical modeling of transient and finite amplitude effects and their impact on the received signals and inversion procedure.

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