

# Analysis of Acoustic Scattering from Fluid Bodies Using a Multipoint Source Model

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**Abstract**—A moment method solution is presented for the problem of acoustic scattering from homogeneous fluid bodies. The moment method solution uses fictitious isotropic point sources to simulate both the field scattered by the body and the field inside the body and in turn point-matches the continuity conditions for the normal component of the velocity and for the pressure across the surface of the body. The procedure is simple to execute and is general in that bodies of arbitrary smooth shape can be handled effectively. Perfectly rigid bodies are treated as reduced cases of the general procedure. Results are given and compared with available analytic solutions, which demonstrate the very good performance of the procedure.

*et al.* [3]. Useful references to earlier work with homogeneous scatterers can also be found in [3].

Recently, an analysis of electromagnetic scattering by metallic and homogeneous material bodies of arbitrary smooth shape has been facilitated via a simple and efficient moment method solution [4] using fields of spatially-impulsive sources as expansion functions for the unknown fields in conjunction with a point-matching testing procedure. This idea has been applied lately to static elasticity problems by Burgess and Mahajerin [5], [6],