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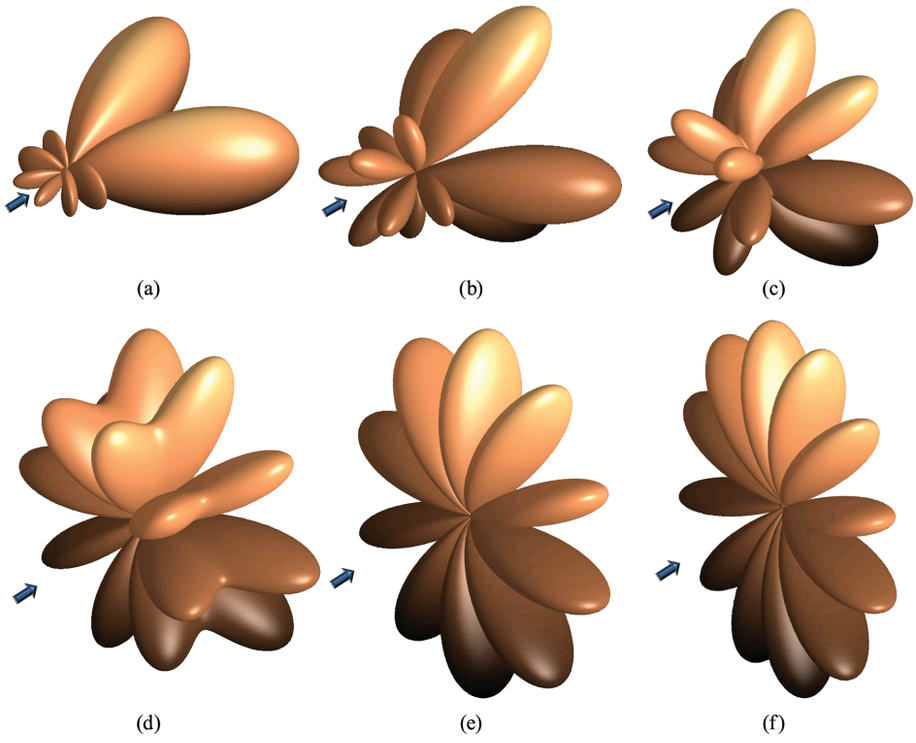

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Acoustic Scattering of a High-Order Bessel Trigonometric (Non-Vortex) Beam by a Fluid Hexane Sphere

This figure shows the 3-D directivity diagram plots of the far-field scattered pressure of a high-order Bessel trigonometric (non-vortex) beam from a fluid hexane sphere submerged in water and centered on the beam's axis of wave propagation. The parameters chosen for these computations are $ka = 5$ and $\beta = 30°$, where k is the wavenumber, a is the radius of the sphere, and β is the half-cone angle of the beam. The integer order (or topological charge) m of the beam is varied from 1 to 6, corresponding to panels (a)–(f), respectively. The arrow in the bottom left-hand portion of each panel indicates the direction of the incident waves. Image courtesy of Farid G. Mitri, Los Alamos National Laboratory, MPA-11, Sensors & Electrochemical Devices, Acoustics & Sensors Technology Team, Los Alamos, NM.

For related reading, see the article on pages 1781–1790 in this issue. Additional results were recently reported in the article F. G. Mitri, "Linear axial scattering of an acoustical high-order Bessel trigonometric beam by compressible soft fluid spheres," *J. Appl. Phys*., vol. 109, no. 1, art. no. 014916, 2011.

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