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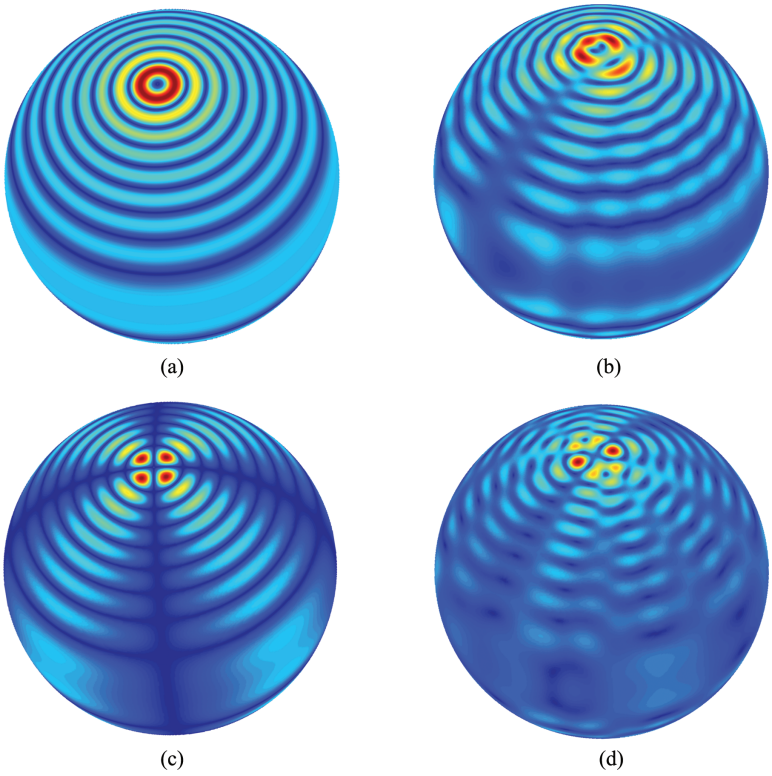

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Pressure Magnitude Distribution on a Spherical Particle Illuminated by Nondiffracting Acoustical High-Order Bessel Vortex and Nonvortex Beams Of Fractional Type α

The cover image shows the computational plots corresponding to the spatial distribution of the pressure magnitude exerted on a spherical particle placed in the acoustical field of high-order Bessel vortex [panels (a) and (b)] and nonvortex [panels (c) and (d)] beams of fractional type α. Such beams belong to the family of nondiffracting beams and are exact solutions of the homogeneous source-free Helmholtz equation. The plots in (a) and (c) are computed for an integer parameter $\alpha = 2$, whereas the plots in (b) and (d) display the results for $\alpha = 2.5$. The transverse wave number used for the simulations is 29.3281 m^{-1} with truncation constants of $m_{min} = -m_{max} = -30$.

Additional results for both the high-order Bessel vortex and nonvortex beams of fractional type α have been previously reported in the articles F. G. Mitri, "Interaction of a nondiffracting high-order Bessel (vortex) beam of fractional type α and integer order m with a rigid sphere: Linear acoustic scattering and net instantaneous axial force," *IEEE Trans. Ultrason. Ferroelectr. Freq. Control,* vol. 57, no. 2, pp. 395–404, Feb. 2010, and F. G. Mitri, "High-order Bessel nonvortex beam of fractional type α," *Phys. Rev. A*, vol. 85, no. 2, art. no. 025801, 2012, respectively.

Images courtesy of Farid G. Mitri, Los Alamos National Laboratory, Materials Physics and Applications Division, MPA-11, Sensors & Electrochemical Devices, Acoustics & Sensors Technology Team, MS D429, Los Alamos, NM.

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