Isosurface Contour Plots of Tightly Focused High-Order Pseudo-Gaussian Acoustical Beams

The cover image displays numerical simulations representing the isosurface contour plots of the acoustical pressure magnitude of tightly focused (high-order) pseudo-Gaussian beams, with $kw_0 = 0.1$, where $k$ is the wave number and $w_0$ is the beam waist.

The left panel is the isosurface contour plot of a high-order pseudo-Gaussian vortex (or helicoidal) beam of third degree and first order, i.e., $(n, m) = (3, 1)$, manifested by doughnut-shaped rings above and below the central ring. The central panel is the isosurface contour plot of a high-order pseudo-Gaussian vortex (or helicoidal) beam of third degree and third order, i.e., $(n, m) = (3, 3)$, manifested by doughnut-shaped rings around the central ring. The right panel is the isosurface contour plot of a high-order pseudo-Gaussian trigonometric beam of second degree and second order, i.e., $(n, m) = (2, 2)$.

Images courtesy of Farid G. Mitri, Los Alamos National Laboratory, Materials Physics and Applications Division, MPA-11, Sensors and Electrochemical Devices, Acoustics and Sensors Technology Team, Los Alamos, NM. The research accompanying these images will appear in an upcoming issue of the IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control.