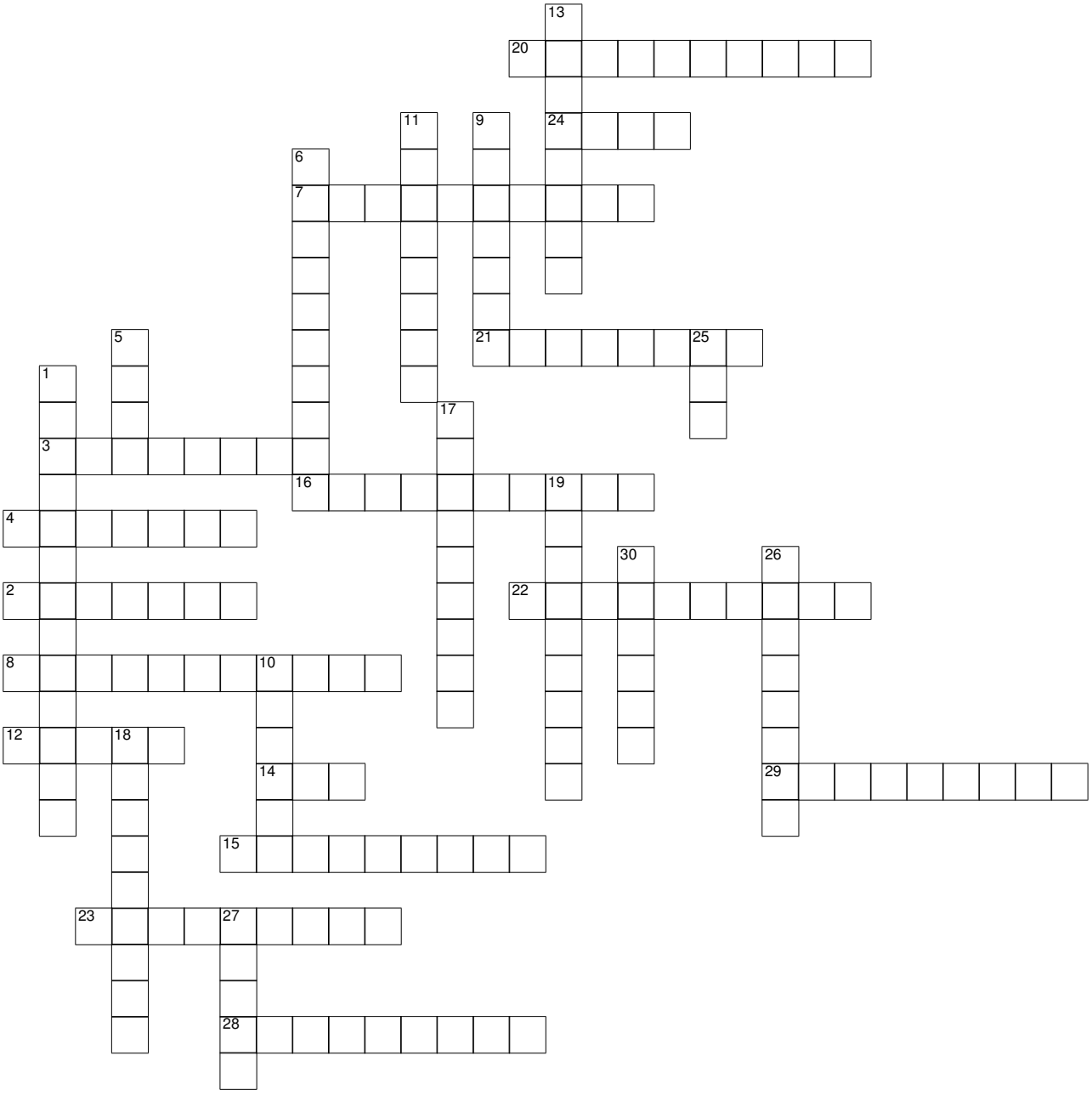
An acoustical crossword puzzle: 25th ICA and 188th ASA

by the ASA Student Council



Across 2 Spiral-shaped hearing cavity 3 Common acoustic field variable 4 Physicist associated with the paraxial approximation 7 Bending of waves upon entering a different medium 8 Spreading and interference of waves in space 12 Physicist associated with $\int_{-\infty}^{\infty} \delta(x)\,dx = 1$ 14 Fluttering echolocating creature 15 Physicist after whom $\nabla^2 p + k^2 p = 0$ is named 16 Bouncing of waves off of surfaces 20 Crest-to-crest distance 21 Mathematician after whom $(1 - x^2)y'' - 2xy' + \lambda y = 0$ is named 22 Phenomenon in which multiple eigenfunctions share the same eigenfrequency 23 Physicist after whom $\Box^2 = \nabla^2 - c_0^{-2}\partial^2/\partial t^2$ is named 24 Fourier transform of box function 28 Ratio of acoustic pressure to particle velocity 29 Wave height **Down** 1 Addition of solutions of the linear wave equation 5 Physical phenomenon described by $f(x \pm ct)$ 6 Physicist associated with far-field diffraction 9 Unit quantifying the loudness of sound 10 Quality of a sound based on its harmonic content 11 Tone whose frequency is an integer multiple of the fundamental 13 $f(x) = e^{-x^2}$ 17 Number of cycles per unit time 18 Process in which heat is not transferred 19 Product of pressure and particle velocity 25 Arrow of sound that points in direction of propagation 26 Mathematician who showed that if $f(x) = \sum_{n=-\infty}^{\infty} c_n e^{inx}$, then $\frac{1}{2\pi}\int_{-\pi}^{\pi} |f(x)|^2 dx = \sum_{-\infty}^{\infty} |c_n|^2$ 27 Art of sounds 30 Mathematician after whom $x^2y'' + xy' + (x^2 - \nu^2)y = 0$

is named