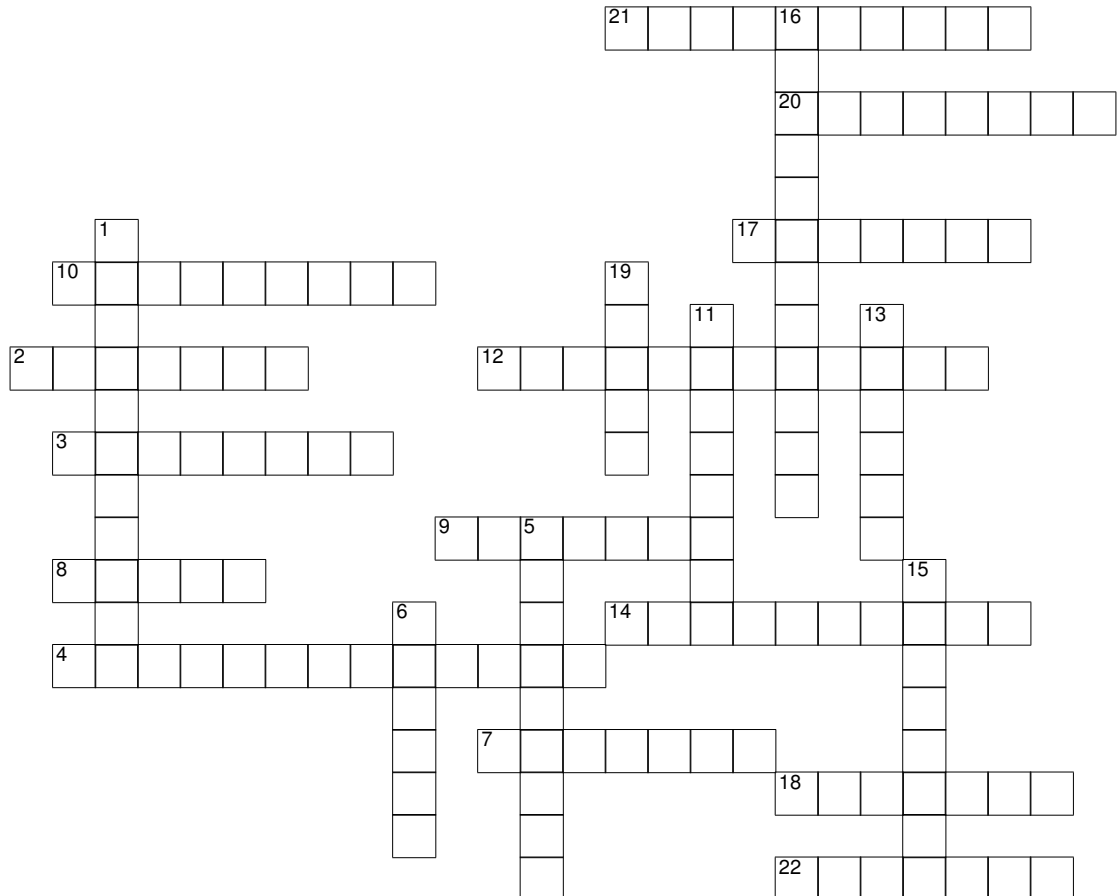


An acoustical crossword puzzle

Prepared by the ASA Student Council*

ASA-ASJ Honolulu 2025



Across 2 Discovered combination tones in music 3 Idealized point source radiating spherically 4 Persistence of sound after the source stops 7 Phenomenon where one sound makes another harder to hear 8 Interval corresponding to $1.5\times$ the fundamental frequency 9 Resonant frequency in the vocal tract shaping vowels 10 Minimum sound level that can be perceived 12 Ability to determine sound direction 14 Dependence of phase velocity on frequency 17 Effect producing frequency shift from motion 18 Periodic modulation of pitch 20 Distortion from undersampling in the frequency domain 21 Developed radiation condition for outgoing waves 22 Calculated sound speed using adiabatic assumption

Down 1 Ocean layer where temperature changes rapidly with depth 5 Amplification of sound at natural frequencies 6 Pioneer of architectural acoustics and reverberation theory 11 Perception of ringing without external sound 13 Device or algorithm removing unwanted frequencies 15 Involving both ears in sound localization 16 Imaging technique using shear wave speed 19 Relative timing between oscillations

*The first three attendees to complete this puzzle will win a prize. Submit your solution at the ASA Student Council booth.