Obituary
Lisa M. Zurk, 1962–2022

Lisa M. Zurk, Fellow of the Acoustical Society and first woman chair of the Acoustical Society of America (ASA) Technical Committee on Underwater Acoustics, passed away on January 12, 2022.

Lisa started her career not in acoustics but in computer science, receiving her BS degree from the University of Massachusetts, Amherst, in 1985. She spent some of her early years in industry before moving on to graduate school. She earned a MS degree in electrical and computer engineering in 1991 from Northeastern University, Boston, Massachusetts, and a PhD in 1995 in electrical engineering from the University of Washington, Seattle, with a study on electromagnetic scattering with applications to remote sensing of snow.

Lisa had a highly accomplished research career. In 1996, she returned to the Boston area as a technical staff member at the Massachusetts Institute of Technology Lincoln Laboratory, Lexington, where she began splitting her research between acoustics (sonar systems) and electromagnetics (radar systems). Lisa was one of those rare individuals who was considered an expert in both electromagnetics and acoustics, and she simultaneously contributed to these two fields and drew key insights from each. She left the Lincoln Laboratory in 2005 to join the faculty of the Electrical and Computer Engineering Department at Portland State University (PSU), Portland, Oregon. She was recruited away from PSU in 2016 by the Defense Advanced Research Projects Agency (DARPA) to become a program manager. During her time at PSU, Lisa published numerous research articles related to electromagnetic scattering in the terahertz frequency band. At the same time, she and her students published 12 articles in *The Journal of the Acoustical Society of America*. In 2017, she was hired as the first woman to lead the Applied Physics Laboratory at the University of Washington as executive director.

In electromagnetics, Lisa's most impactful work was related to propagation and scattering in the terahertz frequency band. In acoustics, she is best known for developing innovative active and passive signal-processing methods to improve underwater sonar systems. She had a particular talent for using physics-based insights to improve signal-processing methods. In some cases, the processing she employed included a physics-based model of the ocean acoustic waveguide that is generally referred to as matched field processing (MFP). In other situations, she used simple phenomena like the Lloyd's Mirror effect caused by interference between sound produced by an underwater source and its reflection off the sea surface. She developed processing methods that exploited these interference effects to determine the source depth and, in some cases, also the range. She applied these methods to both passive and active sonar scenarios and supported results with measurements from at-sea data collections. She, along with her students, even applied MFP concepts to electromagnetic terahertz applications of nondestructive testing. Lisa's legacy includes the lasting impact she had on so many of her colleagues and students. She left us too soon and will be greatly missed.

Selected Publications by Lisa M. Zurk

Kniffin, G. P., Boyle, J. K., Zurk, L. M., and Siderius, M. (2016). Performance metrics for depth-based signal separation using deep vertical line arrays. *The Journal of the Acoustical Society of America* 139(1), 418-425.

Quijano, J. E., Zurk, L. M., and Rouseff, D. (2008). Demonstration of the invariance principle for active sonar. *The Journal of the Acoustical Society of America* 123(3), 1329-1337.

Zurk, L. M., and Rouseff, D. (2012) Striation-based beamforming for active sonar with a horizontal line array. *The Journal of the Acoustical Society of America* 132(4), EL264-EL270.

Zurk, L. M., Lee, N., and Ward, J. (2003). Source motion mitigation for adaptive matched field processing. *The Journal of the Acoustical Society of America* 113(5), 2719-2731.

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