



Luz D. Sotelo (she/they) is an Assistant Professor in the School of Mechanical Engineering at Purdue University working in the areas of acoustics, ultrasonics, NDE, and convergent manufacturing. She is the Purdue lead on a National Science Foundation Future Manufacturing Award to study sustainability and performance for in space manufacturing.

Before joining Purdue, Sotelo was a post-doctoral research associate under an award from the National Academies of Sciences, Engineering, and Medicine (NRC RAP) at the U.S. Naval Research Laboratory. She is also a recipient of graduate research awards from the National Science Foundation (NSF GRFP and NSF GRIP). She received her Ph.D. in mechanical engineering and applied mechanics from the University of Nebraska-Lincoln, where she worked in the manufacturing and characterization of functionally architected materials with hybrid Additive Manufacturing (AM). She has also been involved and led multiple efforts to promote broader societal participation in STEM fields and is a recipient of national awards from Great Minds in STEM and the Society of Hispanic Professional Engineers.

Ultrasonic Nondestructive Evaluation for Convergent Manufacturing

Advanced manufacturing technologies enable the creation of highly specialized engineering materials and structures. Understanding the effect of the manufacturing process on the material properties of finished components is of great importance in designing architected materials for specific applications, ensuring the manufacturability of these architectures, and developing novel components with the desired functionalities. Equally important is the ability to ensure the sustainable manufacturing and safe operation of these parts, which requires methods for nondestructive evaluation and imaging (NDE). In this presentation, I will provide an overview of my research applying ultrasonic NDE methods and principles to characterize samples fabricated using advanced manufacturing methods, namely hybrid additive manufacturing (AM). These efforts motivate my research goal to leverage the convergence between acoustics and manufacturing to solve problems in both fields through design and fabrication, monitoring, and characterization.