

For structured session *Shear Waves in Underwater Acoustics*  
**Shear Rigidity and Acoustics in Granular Media**

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The physical underpinnings of the acoustic properties of marine sediments, such as the frequency dependence of the sound speed and attenuation coefficient, are still a subject of debate. Existing theories treat the granular phase as a continuum based in either poroelasticity-based framework (Biot-Stoll) or a phenomenological model of slips at grain-grain contacts (Buckingham's "grain-shearing" model) [1,2]. However, the past two decades have brought drastic changes in our understanding of granular mechanics, particularly in understanding the origin of bulk and shear rigidity for unconsolidated granular packings. In this talk, I will give an overview on recent advances in this field, including work done in our groups, as well as preliminary results from DEM simulations studying dispersion relations in granular packings for both shear and compressional waves.

*Keywords: ICTCA 2023; Sediment; Shear; Acoustics.*

## **References**

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