SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
COLLEGE OF DESIGN AND ENGINEERING
Website: https://cde.nus.edu.sg/ece

Area: Microwave & Radio Frequency (MWRF)

Host: Dr Chua Dingjuan

TOPIC	:	**Acoustic Metamaterial for Live Sound Application**
SPEAKER	:	**Mr Fu Yongwei** **Graduate Student, ECE Dept, NUS**
DATE	:	**Monday, 26 October 2026**
TIME	:	**9:00AM-10:00AM**
VENUE	:	**https://nus-sg.zoom.us/j/82686316776?pwd=5CE0gjvsNdl9t3EFoCqr2MpmJUWDhg.1** **Meeting ID: 826 8631 6776** **Passcode: 123456**

ABSTRACT

Live sound engineering faces acoustic problems that building acoustics rarely has to deal with. A concert hall or studio is designed to suit a particular acoustic characteristic. A touring system goes into a different room every night, often a sports hall, ballroom or black box that was never built for music, and the engineer has a few hours to make it work. Any treatment has to go up fast, come down fast and fit in a truck.

The hardest part sits at the bottom of the spectrum. Below 200 Hz, wavelengths run to several meters and subwoofer energy couples into room modes, producing loud and dead spots across the audience and on stage. Porous absorbers need to be a large fraction of a wavelength thick to work here, and fixed bass traps are heavy, bulky and set to one frequency that may not match the next room.

This talk looks at membrane-type acoustic metamaterials as a possible answer. A thin tensioned membrane carrying a small central mass resonates at a frequency far below what its size would suggest, so a panel a few centimetres deep can act on wavelengths of several meters.

BIOGRAPHY

Fu Yongwei is a graduate student in the Department of Electrical and Computer Engineering at NUS, where his research is on acoustic solutions for live sound applications, with a focus on tunable membrane-type acoustic metamaterials for low-frequency control. He has worked as a live sound system engineer for 15 years and is an adjunct lecturer in audio production at Nanyang Polytechnic, Ngee Ann Polytechnic and LASALLE College of the Arts.