



國立清華大學  
NATIONAL TSING HUA UNIVERSITY

## Colloquium

Department of Engineering  
and System Science,  
Institute of Nuclear  
Engineering and Science,  
National Tsing Hua University

### Thermoacoustics Technology

許書涵 教授, S. H. Hsu, Professor,  
Department of Mechanical  
Engineering,  
National Taipei University of  
Technology

In this talk, the following content will be presented:

The thermoacoustic effect is a self-excited oscillation phenomenon triggered by a sharp axial temperature gradient applied to the air column resonance tube. Since the thermoacoustic effect runs the thermodynamic cycle in the form of sound waves, it can be applied to thermoacoustic engines and thermoacoustic refrigerators. The thermoacoustic engine uses sound waves to replace the piston mechanical moving parts, which has the advantages of durability and easy maintenance. It can also run a high thermal efficiency Stirling cycle. This lecture will introduce the current development of thermoacoustic phenomena and thermoacoustic devices, and an introduction to linear thermoacoustic theory.

**15:30-17:20, Wed., December 16<sup>th</sup>, 2020**

**NE69 ESS Building, NTHU**

**101, Sec2, Kaung-Fu Rd., Hsinchu  
30013, Taiwan**

## Biography:



Dr. S. H. Hsu(許書涵) graduated from Department of Mechanical Engineering, National Taipei University of Technology, after that he received his Ph.D. degree from the School of Engineering, Tohoku University in 2017. He served as an assistant professor at the Department of Mechanical Engineering, National Taipei University of Technology, The research direction is the experimental investigation of thermoacoustic effects, the design and development of thermoacoustic engines and thermoacoustic refrigerators, and the exploration of nonlinear thermoacoustic phenomena.