

# 学术报告会

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地点: 电院群楼2-410会议室

## Performance Evaluation of Underwater Acoustic Communications: Why can't we build an underwater acoustic channel model for everyone to use?

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### Abstract:

With a growing number of modulation and equalization schemes proposed for underwater acoustic communications, the need exists for methods to evaluate the performance of the various methods under the same channel conditions. An ideal solution is to develop channel simulators using acoustic propagation models. However, this effort has not been fruitful since acoustic channel simulations so far have failed to capture the characteristics of real ocean channels at practical communication frequencies, except for special cases where the acoustic environments are well known. This talk will present properties of underwater acoustic channels and provide an experimentally based solution to address this important problem.

### Biography:

T. C. Yang received the Ph.D. degree in high energy physics from the University of Rochester, Rochester, NY, USA, in 1971. He is currently a Professor and previously a Pao Yu-Kong Chair Professor at the Zhejiang University. From 2012 to 2014, he was a National Science Counsel Chair Professor at the Nat. Sun Yat-Sen Univ. Kaohsiung, Taiwan. Before that, he spent 32 years working at the Naval Research Laboratory, Washington, DC, serving as Head of the Arctic Section, Dispersive Wave Guide Effects Group, and acting Head of the Acoustic Signal Processing Branch, and consultant to the division on research proposals. His current research focuses on: (1) environmental impacts on underwater acoustic communications and networking, exploiting the channel physics to characterize and improve performance, (2) environmental acoustic sensing and signal processing using distributed networked sensors, and (3) methods for improved channel tracking and data-based source localization. In earlier years, he pioneered matched mode processing for a vertical line array, and matched-beam processing for a horizontal line array. Other areas of research included geoacoustic inversions, waveguide invariants, effects of internal waves on sound propagation in shallow water, Arctic acoustics, etc. He is a fellow of the Acoustical Society of America.