

**The Concept of Consistent Resampling Theory for Non-bandlimited Signals  
And Its Applications**

Keynote Talk

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**Abstract**

Sampling theory deals with the conversion of analog signals to digital samples. In many applications, there is a need to resample digital signals. This process requires the digital signal to be first reconstructed as a continuous signal before resampling. Current theory assumes this continuous signal to be bandlimited. A new theory, known as consistent resampling, has been proposed by the author which does not have this band-limitation requirement. In this talk, the consistent resampling theory is introduced. It is then illustrated through applications to image resizing, and to the detection of Pilot Symbol Assisted Modulation (PSAM) which is a noisy resampling problem. In the later case, the mobile channel is estimated from the noise corrupted data sequence and resampled so that the transmitted data can be recovered.