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Nonstationary Time Series Analysis with Modern Signal Processing Techniques

Dates: December 26, 27, 28, 29,

January 2, 3, 4, 5. **Time:** 10:30 – 12:00

List of topics:

1. Linear type time-frequency analysis tools, particularly short-time Fourier transform (STFT) and continuous wavelet transform (CWT)

2. Nonlinear type time-frequency analysis tools, particularly reassignment technique like synchrosqueezing transform (SST) and its variations and a comparison with (ensemble) empirical mode decomposition (EMD)

3. Wave-shape analysis and de-shape algorithm

4. Ridge detection and multi-component decomposition algorithm like shape-adaptive mode decomposition (SAMD)

- 5. Time-varying bandpass filter and phase analysis
- 6. Noise suppression by multi-taper analysis and concentration of Frequency and Time (ConceFT)

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