Recent PAPR Reduction Techniques for OFDM Systems

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Abstract

Orthogonal frequency division multiplexing (OFDM) is a promising multi-carrier modulation technique and has been widely used for wireless communications systems. OFDM is inherently high-bandwidth efficient, but we cannot avoid bandwidth inefficiency to remedy the increased peak-to-average power (PAPR) issue in OFDM systems. In this talk, we consider the bandwidth inefficiency issue of some PAPR reduction techniques for OFDM systems. Two schemes are introduced to cope with the issue. One is null-subcarrier's switching approach and the other is subcarrier group modulation (SGM) approach. Especially, the latter one accomplishes bandwidth efficient communications. Some simulations results are shown and it is unveiled that both approaches are interesting and play an important role for OFDM systems.

Biography:

Tetsuya Shimamura has completed his PhD from Keio University in 1991. He was Dean of Information Technology Centre at Saitama University and is a full professor currently there. He has published over 90 refereed journal articles and 220 international conference proceedings papers. He is an author or co-author of eight books, and a member of the organizing committee of several international conferences. He has received IEEE PACRIM, Gold Paper Award, in 2012, WSEAS MUSP, Best Paper Award, in 2013, and IEEE IFOST, Best Paper Award, in 2014. Also, he is a recipient of Journal of Signal Processing, Best Paper Award, in 2013, 2015, and 2016.

Speaker Publications:

1. Tetsuya Shimamura, DFT-Spread OTFS Communication System with the Reductions of PAPR and Nonlinear Degradation, 2020, DOI: 10.1007/s11277-020-07678-4

2. Tetsuya Shimamura, Speech Enhancement Based on Deep Neural Networks Considering Features of Speech Distribution July 2020 Journal of Signal Processing 24(4):179-182 DOI: 10.2299/jsp.24.179

3. Tetsuya Shimamura, Nonlinear Characteristics of DFT-Spread WR-OFDM System for Spectrum-efficient Communications, December 2019 IEIE Transactions on Smart Processing and Computing 8(6).

4. Tetsuya Shimamura, Spectrum Sensing Based on Higher Order Statistics for OFDM Systems over Multipath Fading Channels in Cognitive Radio November 2019 Journal of Signal Processing 23(6):257-266

5. Tetsuya Shimamura, Eigenvalue-Spread-Based Combination Rule for Distributed Blind Equalization in Networked System November 2019 Journal of Signal Processing 23(6):243-256 DOI: 10.2299/jsp.23.243

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