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Spectrum efficient PAPR reduction techniques for OFDM systems

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. These techniques are effectively combined with a concept of subcarrier group modulation (SGM) to be proposed, resulting in schemes which accomplish bandwidth efficient communications. The available subcarriers are divided into a number of groups and each group is modulated. Then at the receiver side, a maximum likelihood detector is used to catch up the modulation information. The resulting schemes attain low PAPR without compromising their throughput. Some simulation results are shown and it is unveiled that SGM is an interesting idea and plays an important role for OFDM systems.

Biography

Tetsuya Shimamura has completed his PhD from Keio University in 1991. He was Dean of Information Technology Center 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.

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