MULTI−CARRIER SIGNAL SHAPING EMPLOYING HERMITE FUNCTIONS (TueAmOR3)

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Abstract :

In this paper, we introduce a novel signal shaping approach for multi−carrier systems. We propose to combine Hermite functions in order to get a good time−frequency localization property for multi−carrier signals, which is important for robustness against the time−frequency dispersion of the wireless channel. In our work, we orthogonalize the linear combination of Hermite functions in order to get a Weyl − Heisenberg set for multi−carrier signal shaping. We disprove the conjecture that optimum signal shape is achieved by orthogonalizing the Gaussian signal, which results in the IOTA signal. We show that the time−frequency localization of the proposed signal is better than that of the IOTA signal.

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