



# Quasi-Orthogonal Space-Time-Frequency Trellis Codes for MIMO-OFDM Systems

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(Submitted on 12 Jun 2012)

The main objective of this project is to design the full-rate Space-Time-Frequency Trellis code (STFTC), which is based on Quasi-Orthogonal designs for Multiple-Input Multiple-Output (MIMO) Orthogonal Frequency Division Multiplexing (OFDM) systems. The proposed Quasi-Orthogonal Space-Time-Frequency Trellis code combines set partitioning and the structure of quasi-orthogonal space-frequency designs in a systematic way. In addition to multipath diversity and transmit diversity, the proposed code provides receive diversity, array gain, and achieve high-coding gain over a frequency selective fading channel. As simulation results demonstrate, the code outperforms the existing Quasi-Orthogonal Space-Time-Frequency Trellis codes in terms of frame error rate performance.

Subjects: **Information Theory (cs.IT)**

DOI: [10.5121/ijsea.2012.3303](https://doi.org/10.5121/ijsea.2012.3303)

Cite as: [arXiv:1207.0018](https://arxiv.org/abs/1207.0018) [cs.IT]

(or [arXiv:1207.0018v1](https://arxiv.org/abs/1207.0018v1) [cs.IT] for this version)

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