

### **306. ANALYSIS OF DISTRIBUTED SPACE TIME TRELLIS CODE**

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Distributed Space-time trellis codes (DSTTCs) generally provide coding and diversity gains, but only transmit one data symbol per time slot. Using higher order modulations incurs high decoding complexity and lengthy code searches. Multi-layer schemes using multiple DSTTCs over subgroups of antennas provide higher throughput, but require as many receive as transmit antennas and have reduced diversity gains. Here, we develop grouped multilevel STTCs that can provide the high throughput of multi-layered schemes while realizing larger diversity gains. Any number of receive antennas can be used. An example is shown that achieves 6 bits/sec/Hz using 16-QAM and 4 transmit antennas.

Index Terms—Multilevel code, space time trellis code, Rayleigh fading channel, MIMO

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