

# **A NOVEL STOCHASTIC MODEL FOR GROUPED WEIGHTED MULTILEVEL SPACE-TIME TRELLIS CODES FOR RAYLEIGH FADING CHANNELS**

**M. KRISHNASAMY<sup>1</sup>, PRADEEP KUMAR VERMA<sup>2</sup>, VIVEK MISHRA<sup>3</sup>, NAVIN KUMAR AGRAWAL<sup>4</sup>  
& GARIMA MATHUR<sup>5</sup>**

<sup>1,3</sup>ECE, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India

<sup>2</sup>EEE, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India

<sup>4</sup>CSE, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India

<sup>5</sup>Jaipur Engineering College, Kukas, Rajasthan, India

## **ABSTRACT**

The Space-time trellis codes provide the coding and diversity gains, but only transmits one data symbol per time slot. So, the new scheme, which benefits from the advantages of space-time trellis codes, combination of multilevel space-time codes and ideal beamforming, is called as Grouped Weighted Multilevel Space-Time Trellis Codes (GWMLSTTC). This scheme provides the alternative to Space-time trellis codes, by providing the system designer with the flexibility to choose any desired balance between code performance, complexity and throughput. The proposed scheme gives the better performance in high SNR using 64 number of state as compare to 4/8/16/32 using M-PSK with 6 transmit antennas. An example is shown that we achieves 6 bits/sec/Hz, 64 number of states with 4-PSK of BER, SER and FER.

**KEYWORDS:** Space Time Trellis Code, GWMLSTTC, Rayleigh Fading Channel, MIMO