# BER PERFORMANCE ANALYSIS OF OFDM IN COGNITIVE RADIO NETWORK IN RAYLEIGH FADING CHANNEL

**SONALI GUPTA & ARUN KUMAR**

Electronics & Communication, IFTM University, Moradabad, Uttar Pradesh, India

**ABSTRACT**

Orthogonal frequency division multiplexing (OFDM) now a day is becoming a popular modulation technique for cognitive radio networks (CRN). It is only because it can provide large data rates and is sufficiently robust in the face of radio channel impairments. Digital modulation techniques provide efficient evolution for our wireless mobile communications by increasing the capacity, speed and quality of a wireless networks. In this paper, we concentrate on digital modulation schemes, such as QPSK and BPSK over an Rayleigh fading channel to analyze the performance of an OFDM system in terms of bit error rate (BER). Inter carrier interference (ICI) is the major drawback of OFDM. We have chosen pulse shaping schemes, improved sinc power pulses and raised cosine filter for ICI cancelation. All simulation work is done using MATLAB and results shows improvement in BER when ICI cancelation schemes are applied.

**KEYWORDS:** Binary Phase Shift Keying (BPSK), Cognitive Radio Network (CRN), Inter Carrier Interference (ICI), OFDM, Rayleigh Fading, Quadrature Phase Shift Keying (QPSK)