

# Multirate Signal Processing Techniques for High-Speed Communication over Power Lines

With the widespread use of Internet and multimedia applications, there is renewed interest in utilizing the electric power lines for transmission of high data rate communication signals. Power lines offer a convenient and pervasive communication medium that does not require new cable installation. However, power lines are classified as a noisy and unpredictable communication channel. Advanced signal processing techniques, such as wavelet filter banks and multirate systems, can be utilized to improve the quality of communication over power lines. In this article an overview of the diverse applications of wavelet filter banks in power line communications is presented with particular reference to wavelet-based multicarrier modulation techniques. Moreover, some suggestions are given regarding the future applications of multirate signal processing techniques in PLC.