

Special Issue on Advanced Signal Processing Techniques for Digital Subscriber Lines

Call for Papers

The recent deployment of digital subscriber line (DSL) technology around the world is rapidly making broadband access for the mass consumer market a reality. DSL allows telephone operators to get maximum leverage out of their existing infrastructure by delivering broadband access over existing twisted-pair telephone lines. At the heart of DSL lies a plethora of advanced signal processing techniques which enable such high-speed transmission to be achieved over a medium originally designed with only voice-band transmission in mind. As DSL networks are deployed, customer demand for ever higher data rates is growing. This has been fueled by the increasing popularity of applications like peer-to-peer (P2P) file-sharing networks, video streaming, and HDTV.

Achieving such high data rates will require the development of new, advanced signal processing techniques to address many issues that still exist in DSL networks such as crosstalk, impulse noise, high peak-to-average power ratios (PAPR), intersymbol/intercarrier interference (ISI/ICI), and radio frequency interference (RFI). The goal of this special issue is to discuss the state of the art in signal processing techniques for DSL.

Topics of interest include (but are not limited to):

- Dynamic spectrum management
- Vectoring, bonding, and phantom-mode transmission
- Alien crosstalk cancelation
- Other multiuser techniques
- Turbo/LDPC codes for DSL
- Ethernet in the first mile (EFM)
- Advanced modulation techniques for DSL
- PAPR reduction
- Windowing and RFI cancelation
- Equalization and echo cancelation
- Impulse noise mitigation
- Synchronization
- Wavelets and filterbanks

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