Journal Watch

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Non-Coherent Detection and Denoise and Forward Two-Way Relay Networks

Asjedi, Hoseini, Gazor

- Denoise and forward: Detect-> XOR->Relay
- Phase 1: Listen ; Phase 2 : Relay
- M-ary orthogonal signalling used

$$\boldsymbol{y} = \boldsymbol{h}_1\sqrt{P_1}\boldsymbol{s}_1 + \boldsymbol{h}_2\sqrt{P_2}\boldsymbol{s}_2 + w$$

- Sum of two symbols detected
- MAP and ML detectors developed
- Optimal detector ($\mathcal{O}(M^2)$) and suboptimal detector ($\mathcal{O}(M)$) developed
- Channel estimation based iterative detection also done for coherent reception

Distributed Channel Estimation and Pilot Contamination analysis for Massive MIMO OFDM Systems

Zaid et al.

- Channel estimation using antenna coordination
- BS has a planer array
- Multitap correlated channel with known correlation matrices
- Each antenna communicates with 4 adjacent antennas
- Each antenna calculates and shares weighted estimates of itself and neghibours
- Blind estimation also considered
- Most reliable data carriers identified
- Stochastic geometry based quantification of the effects of pilot contamination

Rate Maximization in MIMO Decode and Forward Communications with and EH relay and possibly imperfect CSI

Benkhelifa, Salem, Alouini

- MIMO EH relay system
- Two hop
- Upper bound on the achievable performance derived
- Upper bounds consider both EH and IT use whole of the available energy
- Processing costs negligible as compared to transmission costs

$$\max_{\boldsymbol{R}_s,\boldsymbol{R}_r} R(\boldsymbol{R}_s,\boldsymbol{R}_r)$$
$$s.t.\ Tr(\boldsymbol{R}_s) \le P_s$$
$$Tr(\boldsymbol{R}_r) \le \zeta Tr(\boldsymbol{H}\boldsymbol{R}_s\boldsymbol{H}^H)$$
$$Q_r(\boldsymbol{R}_s) > \bar{Q}_r$$
$$\boldsymbol{R}_s \succcurlyeq \boldsymbol{0}\ \boldsymbol{R}_s \succcurlyeq \boldsymbol{0}$$

- Convex problem
- Can be separated into selection of relay and source covariance matrices
- Optimal power splitting at relay considered
- Time sharing based solution at the relay
- Extended to imperfect CSI

Trace-Based Sparsity Order Estimation with Sparsely Sampled Random Matrices

Zhang, Liu, Du, Huang, Sheng

- Adjust the number of measurements based on the sparsity order
- Toy Example : Wideband spectrum sensing
- SMV and MMV considered with following models
  - Different signal variances across different bands
  - Correlated nonzero entries
- Theoretical sparsity order derived in terms of
  - Trace of the measured signal covariance matrix
  - Order of sparsity
  - Noise Power
- Computational complexity analysed

Other Interesting Papers

- An Optimized Hybrid Approach for Spectrum Handoff in Cognitive Radio Networks With Non-Identical Channels
- Decoding Delay and Outage Performance Analysis of Full-Duplex Decode-Forward Relaying: Backward or Sliding Window Decoding
- Statistical Delay Tradeoffs in Buffer-Aided Two-Hop Wireless Communication Systems
- Mixed-ADC Massive MIMO Uplink in Frequency-Selective Channels
- Robust Analog Precoding Designs for Millimeter Wave MIMO Transceivers With Frequency and Time Division Duplexing