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Journal watch

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Interference Driven Antenna Selection for Massive Multiuser MIMO

P. V. Amadori and C. Masouros

- Antenna selection techniques conventionally based on SNR maximization, capacity maximization, and minimum eigenvalue maximization
- Constructive interference considered as a metric
- Matched filtering combined with low complexity antenna selection to maximize constructive interference at the receiver
- Different schemes needed for different symbol constellations at the transmitter
- Performance studied by deriving an upper bound on the SNR
- Computational complexities of different algorithms compared
- Performance studied under perfect and erroneous CSI.

Joint Resource Optimization for Multicell Networks with Wireless Energy Harvesting

A. A. Nasir, D. T. Ngo, X. Zhou, R. A. Kennedy, and S. Durrani

- Multicell network
- Each cell communicates with edge users using AF in multiple EH relays
- Optimization for BS transmit power, relay power splitting and relay transmit power
- Three nonconvex problems for sum rate maximization, throughput fairness and sum power minimization
- Successive convex optimization approach used
- Iterative algorithms based on Geometric programming and difference of convex functions programming.
- Also extended to decode and forward relaying with variable timeslots

QoS aware resource allocation for device-to-device communications with channel uncertainity

D. Feng, L. Lu, Y.-W. Yi, G. Y. Li, G. Feng, and S. Li

- Obtaining accurate CSI is difficult and causes high overhead especially if the links are not connected to the BS.
- Signaling overhead v/s performance trade off investigated
- Each cellular link allowed at most one D2D pair to limit interference
- Two schemes developed to deal with channel uncertainty, probabilistic and partial feedback
- Overall throughput maximized
- Resource allocation based on guaranteed QoS for a fixed outage probability.
- Channel distributions : Rayleigh, Log-Normal,
- Feedback scheme to reduce the overhead of CSI feedback each D2D user feeds back K best potential CU bands. (In terms of channel quality)
- Allocation is done based on this feedback
- A combination of the outage based and feedback based schemes also proposed where K potential partners use exact CSI and the others are analyzed based on outage.

Spectrum Sensing of OFDM signals in the presence of Carrier Frequency Offset

W. Xu, W. Xiang, M. Elkashlan, and H. Mehrpouyan

- Detection of OFDM signals in the presence of CFO.
- CFO causes correlation between the decoded data
- Symbol level synchronization assumed (I was a reviewer they used proof by intimidation).
- Covariance matrix of the DFT will have nonzero off-diagonal elements
- A variant of the sphericity test used
- Reduces to the standard energy detector in the absence of CFO.
- Comparison with one eigenvalue based algorithm.

Other Interesting Papers

- Resource Allocation for Multiuser OFDMA Hybrid Full/Half-Duplex Relaying Systems With Direct Links Y. Jiang F. C. M. Lau, I. W.-H. Ho, and Y. Gong
- Energy-Efficient Joint Resource Allocation and Power Control for D2D Communications Y. Jiang, Q. Liu, F. Zheng, X. Gao, and X. You
- A Message-Passing Receiver for OFDM-Based Self-Interference-Limited Networks . F. Lehmann
- Joint Resource Optimization for Multicell Networks With Wireless Energy Harvesting Relays A. A. Nasir, D. T. Ngo, X. Zhou, R. A. Kennedy, and S. Durrani
- Multicell Multiuser Massive MIMO Transmission With Downlink Training and Pilot Contamination Precoding J. Zuo, J. Zhang, C. Yuen, W. Jiang, and W. Luo
- Analog Beamforming for Low-Complexity Multiuser Detection in mm-Wave Systems J. Choi
- Performance Analysis of Coded SSK Modulation on Block-Fading Channels S. Nagaraj
- Adaptive Index Modulation for Parallel Gaussian Channels With Finite Alphabet Inputs. J. Zheng