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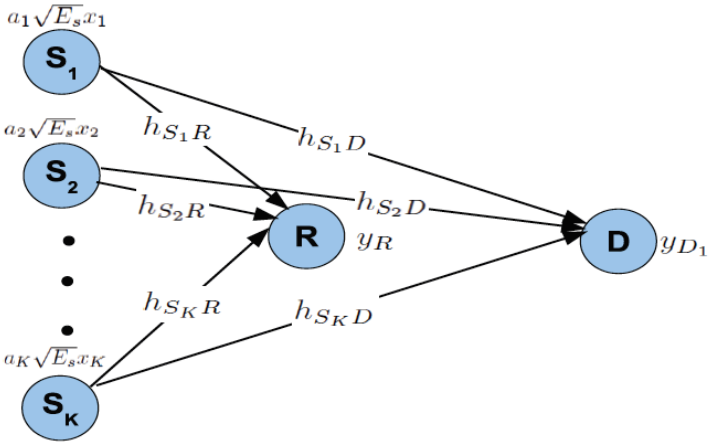
Predictive Vector Quantization for Multicell Cooperation with Delayed Limited Feedback

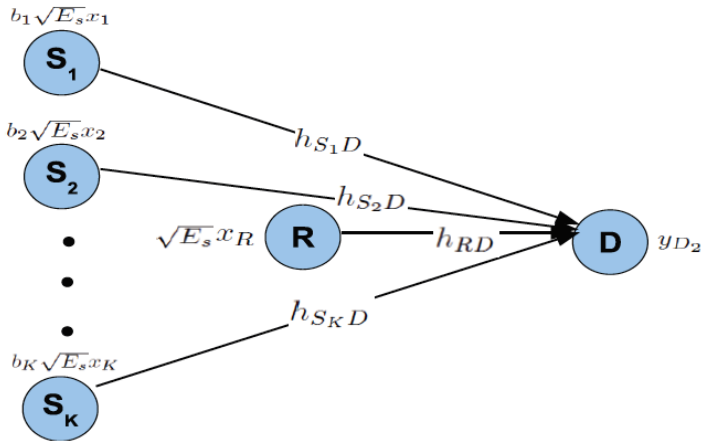
- R. Bhagavatula, R. Heath, UT Austin
- Multicell setup with limited feedback-based intercell interference nulling beamforming
- Exploit temporal correlation in the channel to predict CSI
- Quantize the error between the predicted and actual BF vector
- Performance metric: loss in sum rate due to quantization
- Show that exploiting the time correlation reduces the required training overhead

Physical Layer Network Coding for the K-User Multiple Access Relay Channel

- V. T. Muralidharan and B. S. Rajan, IISc
- Propose a many-to-one mapping of the decoded msg at relay for tx to D
- When the map forms a *latin hypercube*, can achieve div. order = 2
- Show that low complexity decoding is possible at D



(a) Phase 1



(b) Phase 2

Joint Beamforming and Power Control in Coordinated Multicell: Max-Min Duality, Effective Network and Large System Transition

- Y. Huang, C. W. Tan, and B. D. Rao, UCSD
- Coordinated multicell downlink, multiple users per cell: BF and power control
  - Distributed algorithms
  - Low complexity/fast convergence
- Goal: Max. the min. SINR s.t. power constraints
- Contributions:
  - Analysis & distr. algo. design
  - Characterize the structure of the power control problem in the large system setting (# antennas and # users per cell -> ∞ with fixed ratio)
  - Low complexity algo which does not require any instantaneous backhaul exchange
- Tools:
  - Network duality
  - Perron Frobenius theory
  - Random matrix theory
- The paper has 79 references!

Optimal Scheduling for Quality of Monitoring in Wireless Rechargeable Sensor Networks

- P. Cheng, S. He, F. Jiang, Y. Gu, J. Chen, Zhejiang Univ. China
- Wireless Identification and Sensing Platform (WISP) tags: harvest RF energy
- WISP reader: zaps the WISP tags
- Goals:
  - Find optimal on-off schedule for WISP tags to monitor stochastically occurring events
  - Find optimal path/schedule for WISP reader to ensure energy availability at tags
- Metric: Quality of Monitoring = (#events detected)/(#events occurred)
- Analyze the QoM and determine optimal on-off schedule + optimal path for the reader

Impact of Wireless Channel Uncertainty upon Distributed Detection Systems

- H. R. Ahmadi, A. Vosoughi, Central Florida

Distributed Sampling Rate Control for Rechargeable Sensor Nodes with Limited Battery Capacity

- Y. Zhang, S. He, J. Chen, Y. Sun, (Zhejiang)
  X. Shen (Waterloo)

Joint Precoder Design for Distributed Tx of Correlated Sources in Sensor Networks

- J.Fan, H.Li, Z.Chen, Y.Gong, multiple univ.

Analytical Modeling of Uplink Cellular Networks

- T. D. Novlan, H. S. Dhillon, J. Andrews, UT Austin