

TWC SEP. 2015

JW BY CHANDRA MURTHY

THE IMPACT OF PHYSICAL CHANNEL ON PERFORMANCE OF SUBSPACE-BASED CHANNEL ESTIMATION IN MASSIVE MIMO SYSTEMS

- M. Teeti, J. Sun, D. Gesbert, Y. Liu, EURECOM, Huazhong Univ. of S&T
- Subspace method: tackles pilot contamination
 - Idea: if $\text{SNR}/\text{INR} > X$, received spectrum splits as signal evals + intf. evals.
=> pilot contamination can be eliminated
- Physical channel: finite number of scatters, so i.i.d. assumption does not hold
- Asymptotic spectral analysis: need higher X for eliminating pilot contamination
 - Also, an “antenna saturation” effect is demonstrated: if there are P AoAs, performance is the nearly the same as with P antennas and i.i.d. coeffs
- Multi-cell case: performance limited by the cell with least number of AoAs
- A relatively straightforward paper if one has the RMT background

FAIR SCHEDULING POLICIES EXPLOITING MULTIUSER DIVERSITY IN CELLULAR SYSTEMS WITH D2D COMMUNICATIONS

- P.C. Nguyen and B.D. Rao, UCSD
- Resource allocation with D2D support
 - Two policies for RA contrasted, and shown to provide marked improvements over cellular-only policies
 - Cellular fairness scheduling (CFS) policy: D2D extension to existing cellular systems (D2D only when no cellular user is good enough)
 - D2D fairness scheduling (DFS): harness max. performance from D2D enabled systems (orthogonal sharing setting)
 - Group fairness scheduling (GFS): exploits both spatial and freq. reuse => dramatic perf. improvements while preserving fairness

QUEUE-AWARE OPTIMAL RESOURCE ALLOCATION FOR THE LTE DOWNLINK WITH BEST-M SUBBAND FEEDBACK

- H. Ahmed, K. Jagannatham, S. Bhashyam, IIT Madras
- Resource allocation best M subband feedback
 - Users report best M subbands and an effective SNR, and their queue state
 - Simultaneous subband and rate allocation
 - Novelty: use a ‘Gumbel’ limit theorem to characterize outage probability of the best-SNRs reported by users and combine it with a Lyapunov framework
 - Numerical results: better than proportional fair scheduling

ON FUNDAMENTAL TRADE-OFFS OF DEVICE-TO-DEVICE COMMUNICATIONS OVER LARGE WIRELESS NETWORKS

- A. Alitieri, P. Piantanida, R.L. Vega, C. G. Galarza, Univ. Paris-Sud
- Goal: To study the gains achievable by using D2D mode
- Stochastic geometric framework: users are grouped into clusters where D2D exchanges are possible within each cluster
- Two metrics introduced
 - Global metric = density of served requests/density of requests
 - Local metric = served requests in a cluster/requests in a cluster
- Substantially larger number of requests can be served by using distributed caching (no need for an explicit caching infrastructure)

OTHER PAPERS

- D. W. K. Ng and R. Schober, Secure and green SWIPT in distributed antenna networks with limited backhaul capacity
- J. Choi, Iterative methods for physical-layer multicast beamforming