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An Efficient Relay Selection Strategy for Random Cognitive Relay Networks

Jonghyun Bang, Jemin Lee, Seokjung Kim, and Daesik Hong

- **Aim** : Low-(selection) complexity relay selection strategy for lower outage probability in RCRNs
- **Model:** Users randomly distributed (PPP)
- **Contributions:**
  - Optimal relay location that minimizes the outage probability
  - Relay Selection strategies
    - Optimal (i.e., using CSI of all relays) – Derive outage probability
    - Efficient RSS - Derive Lower bound on outage probability
  - Analyze the effect of the candidate relay set size on the outage probability of the RCRN

Energy Efficiency Maximization Framework in Cognitive Downlink Two-Tier Networks

Rindranirina Ramamonjison and Vijay K. Bhargava

- **Model** : Heterogeneous two-tier architecture
- **Aim** : Maximize the *Sum Energy Efficiency* of the small-cell users while protecting the macro-cell users
- Energy efficiency: Rate per unit of energy (non-convex, hard to maximize)
- **Approach:**
  - Formulate a centralized optimization problem
  - Two Steps :

    Orthogonal small-cell transmissions

    1. Derive an algorithm based on damped Newton method.

       Prove convergence to the global optimal solution.

    Interfering small-cell transmissions

    2. Algorithm based on the minorization–maximization principle in conjunction with the previous Newton method.

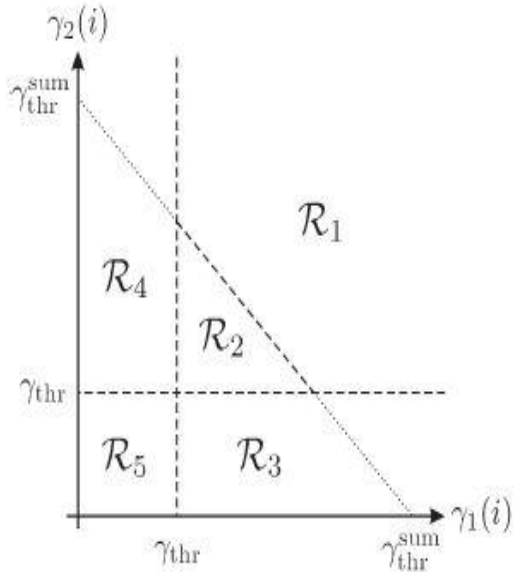
       Prove convergence to at least a local optimum

Bidirectional Buffer-Aided Relay Networks With Fixed Rate Transmission: Delay-Unconstrained Case

Vahid Jamali, Nikola Zlatanov, and Robert Schober

- **Aim** : Sum throughput maximization under the constraint of fixed rate transmission.

- **Approach:**
  - Define the seven transmission modes possible (M_1 to M_7)
  - Illustrate five possible SNR regions based on the decodability of the transmitted codeword(s)
  - Optimal Mode Selection Policy
    - Implemented probabilistically by rolling a die
    - Different dice required for different regions
  - Proposed protocol provides an upper bound for any delay-constrained protocol.



- Uplink Interference Analysis for Two-Tier Cellular Networks With Diverse Users Under Random Spatial Patterns

  Wei Bao and Ben Liang

- Throughput and Delay Tradeoffs for Mobile Ad Hoc Networks With Reference Point Group Mobility

  Jiajia Liu, Nei Kato, Jianfeng Ma, and Toshikazu Sakano

- Energy-Efficient Transmission Strategies for Delay Constrained Traffic With Limited Feedback

  Beatrice Tomasi and James C. Preisig

- On Power Allocation for Incremental Redundancy Hybrid ARQ.

  Chen Ji, Dongming Wang, Nan Liu, and Xiaohu You