Research Overview: Multi-terminal Wireless Communication Systems

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Research Interests

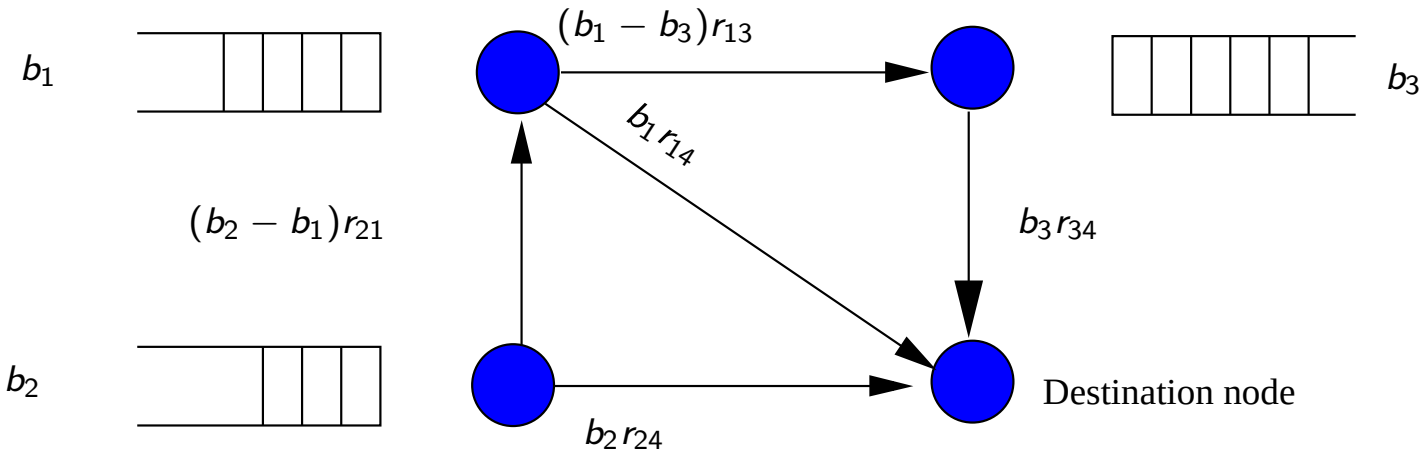
Multi-terminal Wireless Communication Systems/Networks

- Resource Allocation and Scheduling
- Capacity
- Coding
- Cooperation in Cellular Systems

Resource Allocation and Scheduling

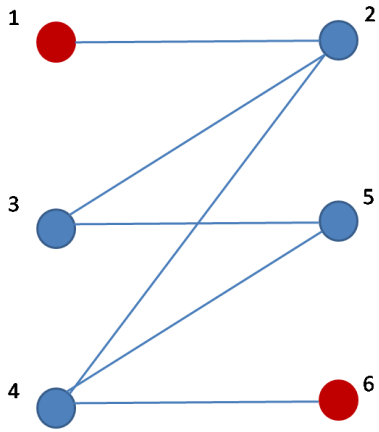
Throughput/Utility Optimization

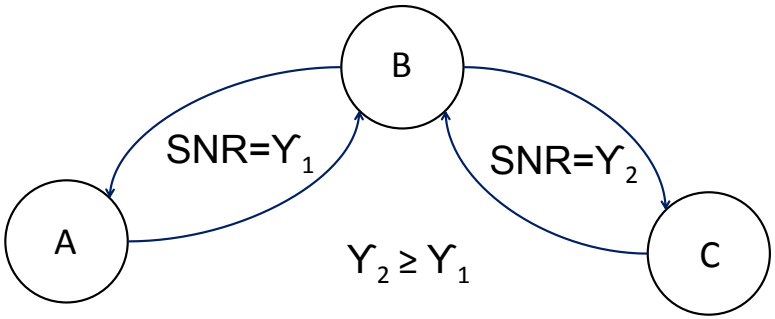
- Queue-aware and channel-aware scheduling
- Incentive compatibility
- Infrequent measurements

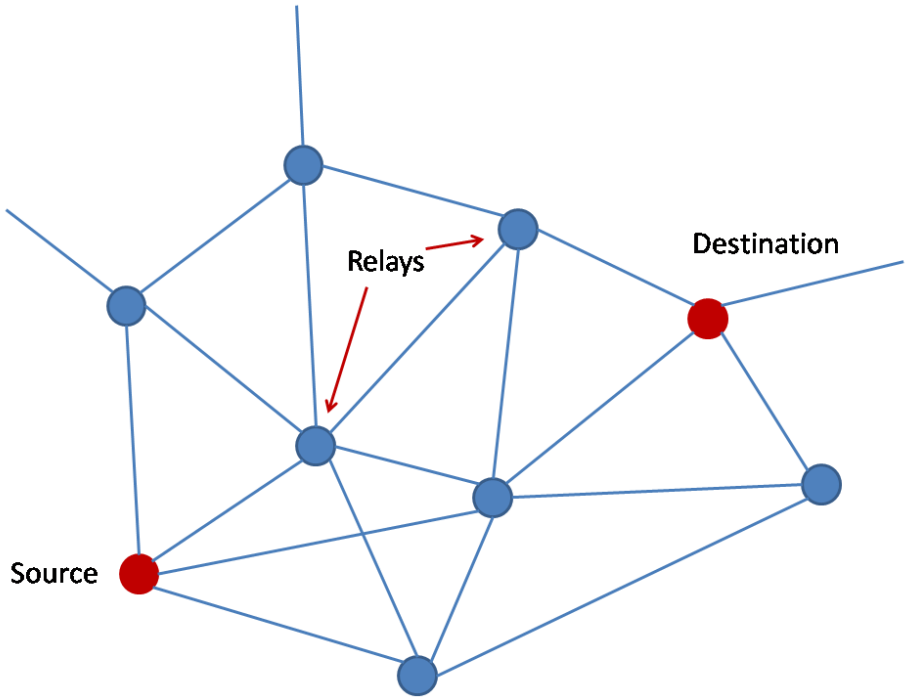


Capacity

- Arbitrary half-duplex Gaussian relay networks
  - Single flow, Multicast
- Two-way relaying
- Interference networks/channels



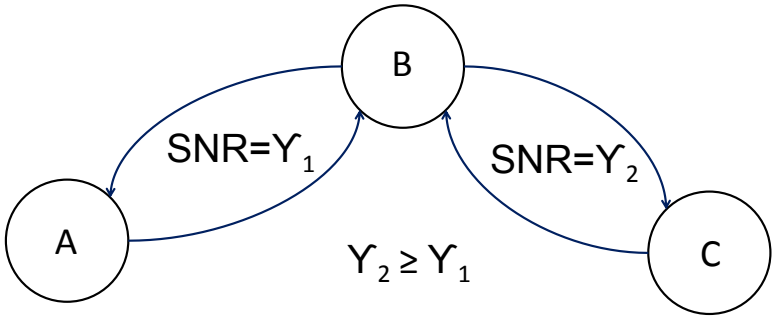


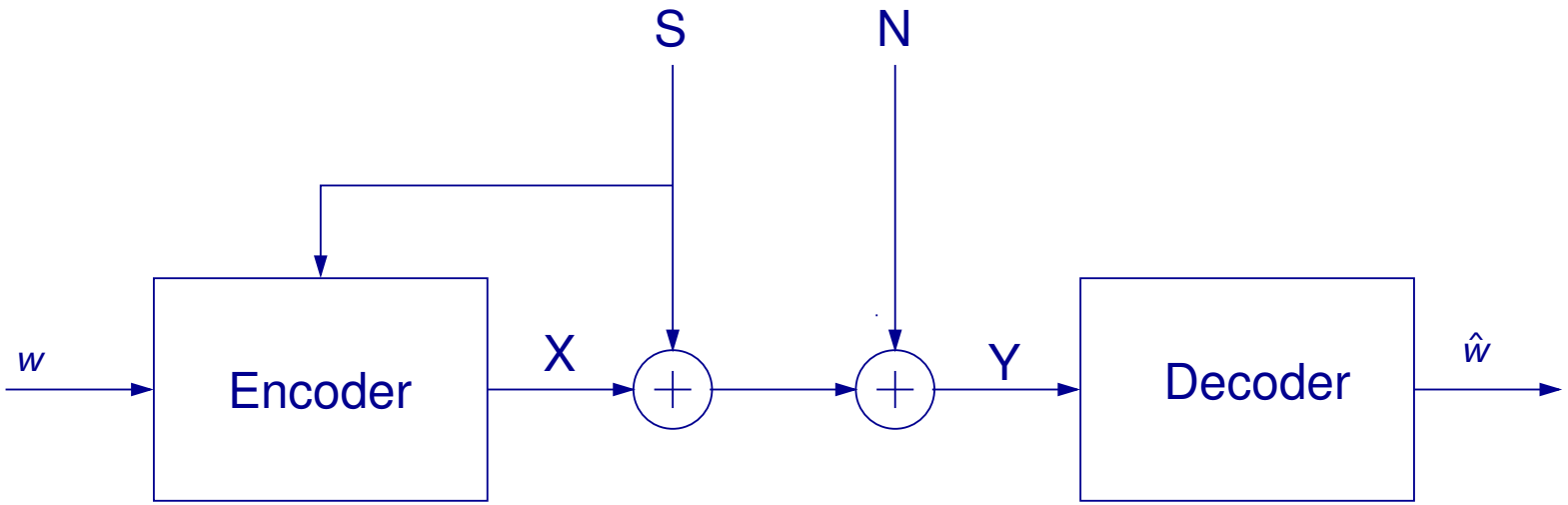


Coding

Capacity-achieving Codes

- Two-way relaying using LDPC codes
- DPC for broadcast and MIMO broadcast
- LDPC codes for OFDM/Parallel channels





Cooperation in Cellular Systems

- Cellular basestation cooperative transmission
- Cooperative scheduling
- Selective cooperation