Journal Watch

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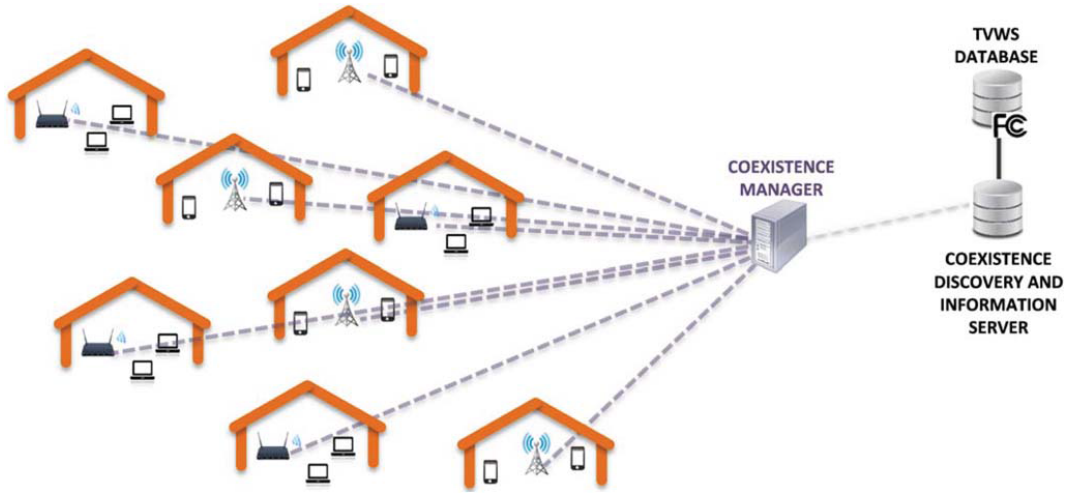
- **Dynamic Deployment of Small Cells in TV White Spaces**

  Authors: Pablo Ameigeiras, David M. Gutierrez-Estevez, and Jorge Navarro-Ortiz

Goal : To design a coexistence solution for a network of small cells in TVWSs by means of channel allocation.

System Model :



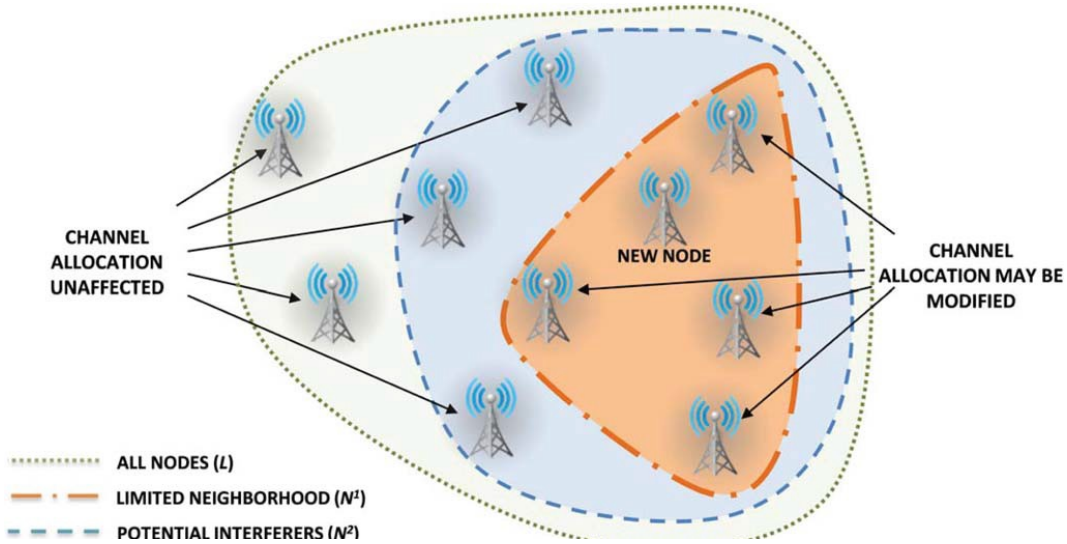
Coexistence Problem :

$$\max_{S_i, \forall i \in L} \quad \sum_{\forall j \in L} \sum_{\forall c \in K} f(j, c/S_1, S_2, \ldots, S_l).\delta(S_j, c)$$

$$\text{s.t.} \quad |S_i| \leq r_i \quad \forall i \in L$$

- Dealt using game theoretic approach.

Channel allocation on a limited neighbourhood:



Coexistence Problem:

$$\max_{S_i, \forall i \in N^1} \quad \sum_{\forall j \in N} \sum_{\forall c \in K} f(j, c/S_1, S_2, \ldots, S_n).\delta(S_j, c)$$

$$\text{s.t.} \quad |S_i| \leq r_i \quad \forall i \in N^1$$

SCDD : CM uses SCDD whenever a new node is switched ON.

- **Device-to-Device Link Admission Policy Based on Social Interaction Information**

  Authors: Li Wang, Huan Tang,and Michal C ierny

Goal : Admission policy for D2D communication link based on social interaction (SI) model and statistical CSI.

SI Characteristics : Contact duration and contact frequency.

Cases :

- One time delivery:

  The delivery success probability (DSP) : $Pr\{T \geq \frac{Z}{R_j^d}\}$

- Multiple encounter delivery:

  $$\text{DSP} : \sum Pr\{(\sum_K T_k)R_j \geq Z | K = i\}.\frac{e^{-\lambda\delta_{max}}(\lambda\delta_{max})^i}{i!}$$

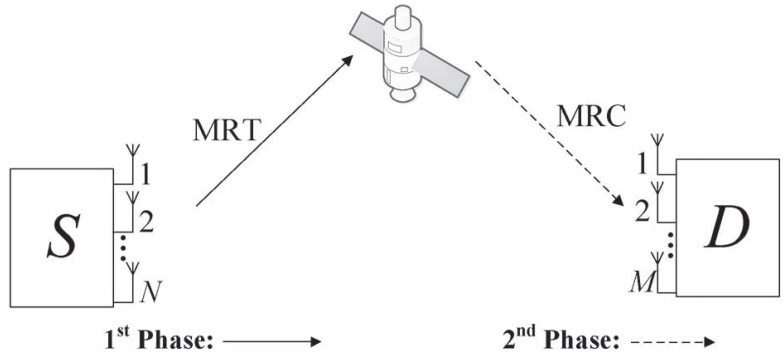
The admissible D2D pair set is given by

$$D_i = \{j \in D : P(g_j, h_{ij}, T) \geq P_{min}^d\}$$

- **Dual-Hop Communication Over a Satellite Relay and Shadowed Rician Channels**

  Authors: Nikolaos I. Miridakis, Dimitrios D. Vergados, and Angelos Michalas

System Model :



Cases :

- CSI assisted relaying.
- Fixed gain relaying.

Contributions :

- Closed form expressions for the pdf of the sum of i.i.d. squared shadowed rician RV's.
- Analytical derivation of cdf of end-to-end SNR is obtained.
- Exact form for the end-to-end outage probability and ASEP are obtained.
- Accurate approximation for the end-to-end ergodic capacity is presented.

- **Max-Min Energy-Efficient Power Allocation (MEP) in Interference-Limited Wireless Networks**

  Authors: Yuzhou Li, Min Sheng, Xijun Wang, Yan Zhang, and JuanWen

Goal and Problem Statement

Goal : To maximize the Energy Efficiency (EE) of the worst-case user (Max-Min).

Problem : MEP Optimal Problem

$$\begin{aligned} \max_{P} \ \min_{i} \ \eta_i &= \frac{R_i(P)}{PC_i(P)} \\ \text{s.t.} \quad c_1 &: R_i(P) \geq r_i^{req} \quad \forall i \\ c_2 &: 0 \leq P_i \leq P_i^{max} \quad \forall i \end{aligned}$$

Problem transformation and Solution :

- Fractional programming.
- Non-smoothness : Epigraph form.
- Constraint $C_1 \rightarrow$ Equivalent convex linear form.
- Constraint $C_3 \rightarrow$ DC Programming.
- Finally, Solve it using interior point method.

Other interesting papers

- **Sum-Rate Maximization for Multicell OFDMA Systems**
  Authors : Sung-Yeon Kim, Jeong-Ahn Kwon, and Jang-Won Lee, Senior Member, IEEE

- **Analytic Comparison for Channel Response Estimation Based on Time-Domain and Frequency-Domain Pilot Signals**
  Authors : Ming-Xian Chang, Member, IEEE

- **Iterative Double-Auction-Based Power Allocation in Multiuser Cooperative Networks**
  Authors : Qian Cao, Yindi Jing, Member, IEEE, and H. Vicky Zhao, Member, IEEE

Thank You :)