



**PHYCOM:  
Physical Communication Journal (ELSEVIER)  
Special issue on:  
Cognitive Radio: Algorithms & System Design**

Cognitive radio is an emerging technology in wireless access, aimed at vastly improving the way radio spectrum is utilized. The basic idea is that an “unlicensed” secondary user can be permitted to use licensed spectrum, provided that it does not interfere with any primary users. The motivation for cognitive radio stems from various measurements of spectrum utilization, which generally show that spectrum is under-utilized. This means that there are many “holes” in the radio spectrum that could be exploited. The research challenges in this area include devising methods for efficient spectrum pooling, interference management and dynamic resource allocation to achieve spectral efficiency without causing harmful degradation to the primary system.

The aim of this issue is to bring together theoretical research contributions and practical applications presenting new techniques, concepts or analyses focusing on cognitive radio algorithms and system design. Original papers on related subjects will be considered, among them spectrum pooling, collaborative communication, system protocols design, implementation and architectures for enabling technologies on cognitive radio, and dynamic spectrum access based communication systems.

**Topics of interest:**

- Wireless Spectrum Auctions
- Dynamic Spectrum Management
- Interference Management
- Spectrum Pooling
- Blind Sensing Techniques
- Co-existence of Heterogeneous Systems
- Distributed Channel Selection and Resource Allocation Algorithms
- Cross Layer Design for Cognitive Radio
- Cooperative Communications in the Context of Cognitive Radio
- Measurements and Channel Modeling for Flexible Bandwidth Systems
- Cognitive and Flexible Radio Architectures and Implementations
- Ultra-wideband Cognitive Radio

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