

## A Survey on Cooperative Spectrum Sensing in Cognitive Radio Networks

Divya Soni  
M. Tech. Scholar,  
Elect. & Comm.  
Department  
IES, IPS Academy,  
Indore (India)

Rupesh Dubey  
Associate Prof. &  
HOD  
Elect. & Comm.  
Dept., IES, IPS  
Academy, Indore  
(India)

Nitin Jain  
Asst. Professor,  
Elect. & Comm.  
Department  
IES, IPS Academy,  
Indore (India)

Mrs. Smita Patil  
Asst. Professor,  
Elect. & Comm.  
Department  
IES, IPS Academy,  
Indore (India)

**Abstract** - In cognitive radio networks, spectrum sensing is a crucial component in the discovery of spectrum opportunities for secondary systems (or unlicensed systems). The performance of spectrum sensing is characterized by both accuracy and efficiency. Currently, significant research effort has been made on improving the sensing accuracy. Several exemplary techniques include energy detectors, feature detectors, and cooperative sensing. In these schemes, either one or multiple secondary users (SUs) perform sensing on a single and the same channel during each sensing period. This strategy on simultaneously sensing a single channel by several SUs may limit the sensing efficiency to a large extent. In this paper, we propose a new parallel spectrum sensing. In this scheme, several SUs are optimally selected to perform sensing. During a sensing period, each of the selected SUs senses a different channel. As a consequence, multiple channels can be simultaneously sensed in one sensing period, and the sensing efficiency is envisioned to improve significantly. To understand trade-off between the sensing overhead and communicative data some techniques proposed by researchers are investigated here.

**Keywords** - Cognitive Radio Networks, Cooperative Sensing, Spectrum Sensing.