

Periodic spectrum management in cognitive relay networks

Author(s) - Institution(s):

Stephen Wang, TREL

Fengming Cao, TREL

Zhong Fan, TREL

Corresponding author email: stephen.wang@toshiba-trel.com

Corresponding WG group: TWGU, SWG2.1

Abstract:

We consider an opportunistic spectrum usage model facilitated with periodic spectrum sensing and handoff in a twohop selective relay network. A novel sensing and fusion algorithm is proposed under a signalling bandwidth-constrained condition by introducing a quantized soft sensing and a test statistic restoration process. The reliability of secondary transmissions is studied, where we derive expressions for the probability of collision, and the throughput of secondary users. Numerical results manifest the advantages of the proposed sensing algorithm in selective relay networks in light of the missed detection probability, signalling cost, collision probability and throughput.