

## Complexity optimization based on the order of coalition formation in cooperative spectrum sensing in cognitive radio networks

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### Abstrak

**ABSTRACT**

Cognitive radio CR, an effective method for shortage of spectrum resources and sensing, can be exploited well in manufacturing for communicating with limited spectrums and monitoring equipment and environment. Although cooperative spectrum sensing in CR using coalition formation CF games can bring in better sensing quality, it is more complex. In this paper, we study two representative CF algorithms with different orders of CF and then present an enhanced CF algorithm based on the new order of maximum utility for two coalitions, aiming at complexity optimization and remaining sensing quality at the same time. It is certified by analyses and simulations that compared with two CF representative algorithms the improved CF one is simple in complexity and high in sensing quality simultaneously. The improved CF algorithm is also demonstrated to be available for the CRN constantly changing.