

应用

认知无线网络中次用户的一种协作传输策略

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摘要:

在认知无线网络中同时存在着主用户和次用户, 次用户的通信行为必须在不影响主用户数据传输的前提下进行。为了保证次用户的传输连续性并改善次用户Qos, 研究人员提出了次用户间相互协作传输的策略, 基于此该文提出了一种基于放大转发的双中继协作传输方案并对所提方案次用户的无冲突传输时间及误比特率进行了详细的理论分析。蒙特卡洛仿真结果表明, 双中继协作传输策略能在单中继协作传输的基础上进一步增加次用户的无冲突传输时间并减小误比特率, 双中继协作传输显著地提高了系统的传输性能。

关键词: 认知无线电; 协作通信; 双中继; 无冲突传输时间; 等增益分集

A Cooperative Transmission Scheme of Secondary User in Cognitive Radio Networks

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Abstract:

Primary users and secondary users coexist in Cognitive Networks at the same time, so the transmission of Secondary Users must not interfere with the transmission of Primary user. The cooperative transmission of Secondary Users can improve the transmission performance of the Secondary Users, so that Cognitive Wireless Network can acquire space and time diversity gain. Before the researcher have proposed a single-relay cooperative transmission strategy. In order to further enhance the system performance of Cognitive Wireless Network. Two-relay collaborative transmission scheme based on amplify and forward is proposed. In this paper, Primary and Secondary Users coexist and Primary Users alternately transfer channel state between busy and leisure. When Primary Users exist, Secondary Users use the relay node to forward data by the chance, and we do the theoretical analysis of conflict-free transmission time and bit error rate of the scheme we propose. The analytical expression of Conflict-free transmission time and bit error rate in the single-relay cooperative transmission and dual-relay cooperative transmission mode are given. Theoretical analysis and simulation results show that, the dual-relay cooperative transmission strategy can further increase conflict-free transmission time and reduce the bit error rate than the single-relay cooperative transmission. Dual-relay cooperative transmission bring considerable performance gain for Cognitive Radio Networks.

Keywords: Cognitive Radio(CR) Cooperative transmission Dual-relay Non-interference transmission durations Equal gain diversity

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