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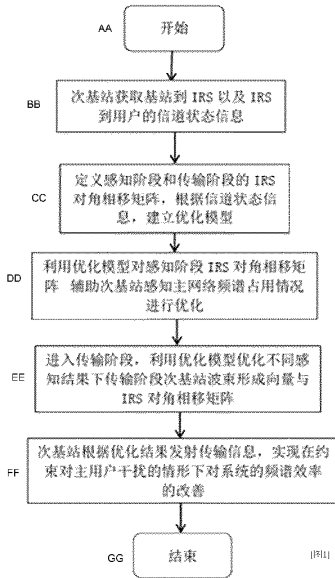
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(54) Title: IRS-BASED RESOURCE ALLOCATION OPTIMIZATION METHOD FOR SENSING ENHANCED COGNITIVE RADIO NETWORK

(54) 发明名称: 一种基于IRS的感知增强认知无线网络资源分配的优化方法



AA Start  
BB A secondary base station acquires channel state information from a base station to an IRS and from the IRS to a user  
CC Define IRS diagonal phase shift matrices in a sensing stage and a transmission stage, and establish an optimization model according to the channel state information  
DD Use the optimization model to perform optimization regarding the IRS diagonal phase shift matrix in the sensing stage assisting the secondary base station in sensing a frequency spectrum occupation situation of a main network  
EE Enter the transmission stage, and use the optimization model to optimize beamforming vectors of the secondary base station and the IRS diagonal phase shift matrices in the transmission stage under different sensing results  
FF The secondary base station transmits transmission information according to optimization results, so as to improve the spectral efficiency of a system when the interference to a primary user is restrained  
GG End

(57) Abstract: The present invention belongs to the technical field of wireless communications. Disclosed is an IRS-based optimization method for resource allocation of a sensing enhanced cognitive radio network. The method comprises the steps of: a secondary base station acquiring channel state information from a base station to an IRS and from the IRS to a user; defining IRS diagonal phase shift matrices in a sensing stage and a transmission stage, and establishing an optimization model according to the channel state information; using the optimization model to perform optimization regarding the IRS diagonal phase shift matrix in the sensing stage assisting the

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- 在修改权利要求的期限届满之前进行, 在收到该  
修改后将重新公布(细则48.2(h))。
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secondary base station in sensing a frequency spectrum occupation situation of a main network; entering the transmission stage, and using the optimization model to optimize beamforming vectors of the secondary base station and the IRS diagonal phase shift matrixes in the transmission stage under different sensing results; and the secondary base station transmitting transmission information according to optimization results, so as to improve the spectral efficiency of a system when the interference to a primary user is restrained. By means of the present invention, a transmission process of a secondary base station is assisted by means of an IRS, such that the secondary base station makes different transmission policies in a more detailed manner, thereby improving a channel environment, and increasing a sum rate of secondary users.

(57) 摘要: 本发明公开了一种基于IRS的感知增强认知无线网络资源分配的优化方法, 属于无线通信技术领域; 步骤: 次基站获取基站到IRS以及IRS到用户的信道状态信息; 定义感知阶段和传输阶段的IRS对角相移矩阵, 根据信道状态信息, 建立优化模型; 利用优化模型对感知阶段IRS对角相移矩阵辅助次基站感知主网络频谱占用情况进行优化; 进入传输阶段, 利用优化模型优化不同感知结果下传输阶段次基站波束形成向量与IRS对角相移矩阵; 次基站根据优化结果发射传输信息, 实现在约束对主用户干扰的情形下对系统的频谱效率的改善。本发明通过IRS辅助次基站的传输过程, 方便次基站更精细地制定不同的发射策略, 改善信道环境, 提高次用户的总和速率。