ABSTRACT

IRS-BASED RESOURCE ALLOCATION OPTIMIZATION METHOD FOR SENSING ENHANCED COGNITIVE RADIO NETWORK

The present invention discloses an optimization method for resource allocation in a perception-enhanced cognitive radio network based on an IRS (intelligent reflecting surface), which belongs to the technical field of wireless communication. The method includes the following steps: acquiring, by a secondary base station (SBS), BS (base station)-to-IRS and IRS-to-user channel state information; defining diagonal phase-shift matrices of the IRS in a perception stage and a transmission stage, and establishing an optimization model according to the channel state information; using the optimization model to optimize that the diagonal phase-shift matrix of the IRS in the perception stage assists the SBS in perceiving a spectrum occupancy of a primary network; entering the transmission stage, and using the optimization model to optimize beamforming vectors of the SBS and the diagonal phase-shift matrices of the IRS in the transmission stage in the case of different perception results; and transmitting, by the SBS, transmission information according to optimization results to achieve an improvement in a spectrum efficiency of a system when constraints interfere with primary users. According to the present invention, a transmission process of the SBS is assisted by the IRS, so that the SBS is facilitated to formulate different transmit strategies more precisely, a channel environment is improved, and a sum rate of secondary users is increased.

(FIG.1)