共生时变二进制樽海鞘群算法的频谱分配优化

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摘　要： 针对认知无线网络中频谱分配优化和寻优收敛精度等难题，在图论模型的基础上提出一种共生时变二进制樽海鞘群算法，并将其运用到认知无线电频谱分配中.首先，在追随者位置更新中引入共生策略以增强开发能力；其次，在连续空间和离散空间转换过程中，引入时变函数对位置进行离散化；最后，采用改进的二进制樽海鞘群算法以最大化系统总效益和次用户公平性为目标与其它算法进行对比实验.结果表明，改进的二进制樽海鞘群算法在应用实例中优于其它算法，且能够有效、稳定用于频谱分配优化.

关键词： 认知无线电；频谱分配；二进制樽海鞘群算法；共生策略；时变函数

Optimization of spectrum allocation for symbiotic and time-variable binary salp swarm algorithm

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Abstract： For the difficult problems of spectrum allocation optimization and optimal convergence accuracy in cognitive radio networks, a symbiotic time-varying binary salp swarm algorithm is proposed to basis of graph theory model and applied to the optimization of cognitive radio spectrum allocation. Firstly, a symbiotic strategy is introduced in the follower location to enhance development capabilities. Secondly, the time-variable function is introduced to disperse the position in the process of continuous space and discrete space conversion. Finally, the improved binary salp swarm algorithm and the other algorithm are compared with the goal of maximizing total system benefit and fairness of secondary user. The results show that the improved binary salp swarm algorithm is superior to other algorithms in the application and can be effectively and stably used for spectrum allocation optimization.

Key words： cognitive radio; spectrum allocation; binary salp swarm algorithm; symbiotic 作者简介：

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