Wireless Engineering Research and Education Center

Topology Control in Free Space Optical Networks

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Abstract

A femtocell is usually a small cellular network, with a femtocell base station (FBS) connected to macrocell base station (MBS) via broadband wireline. The FBS is usually deployed at the places where the strength of the signal received from MBS is weak (e.g., indoor, the edge of MBS). It is designed to offload MBS traffic and serve the approved users when they are within the coverage. Femtocells are recognized effective for improving network coverage and capacity, and reducing power consumption due to the reduced range of wireless transmissions. Although highly appealing, a plethora of challenging problems need to be addressed for fully harvesting its potential. We investigate the problem of cell association in femtocell networks. The cell association problem in femtocell networks is to associate users to either a MBS or a FBS with the objective of: maximizing total network throughput, achieving fairness among all users or balancing traffic load among all BS's. A simple scheme that achieves the greatest network throughput is that each BS chooses only one user with the highest SINR to connect but apparently this is not fair for users. In this talk, we will discuss different cell association schemes and study their performance in femtocell networks.

Bio

Hui Zhou received the B.S. and M.S. degrees in Electronic and Information Engineering from Huazhong University of Science & Technology (China), in 2007 and 2009, respectively. She then worked as a software Engineer at Zhongxing Telecommunication Equipment (ZTE) Corporation from 2009 to 2011. She is currently a PH.D. candidate under the guidance of Dr. Prathima Agrawal and Dr. Mao in the Department of Electrical and Computer Engineering, Auburn University. Her primary research interests now include algorithm design and optimization in FSO network and femtocell networks.

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