

# **Analysis of overload indicators for traffic balance in indoor femtocell networks**

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## **Abstract:**

Cellular infrastructures are growing to support the increasing demand of new cellular services, creating dense, heterogeneous and overlapping networks. That situation requires the development of automatic and intelligent mechanisms to manage these networks such as load balancing methods. In this context, the most challenging areas are indoor environments where the main deployed base stations are femtocells. Femtocells present new network indicators for load balancing methods which must be analyzed under overloaded situations. This paper discusses the use of different overload indicators for traffic balance in indoor femtocell networks. For that purpose, the authors propose novel load balancing mechanisms which assessed those indicators in temporary heavily load femtocells. These methods follow adaptive processes that change the transmission power of femtocells in order to resize their coverage areas. Fuzzy logical systems are developed to accomplish the aim of these mechanisms. Finally, the performance of these mechanisms is assessed in a dynamic LTE system-level simulator.