Abstract

With the progression of wireless technologies and mobile devices, the number of mobile devices in cellular system will dramatically grow. As a result, the base station will face heavy traffic loading and even will not be able to provide adequate services for oversized amount of mobile devices. As a proposed solution to this issue, device-to-device (D2D) technology could be considered as a promising solution to extend spectrum efficiency by reusing radio resource blocks (RBs). This paper studies the resource allocation problem with the aim of maximizing system capacity over ultra-dense 5G cellular systems and a considerable scenario, where number of D2D users is higher than of cellular users. This paper observes that radio RBs should be priority allocated to D2D users under the ultra-dense scenario. Then, resource allocation methods are proposed to solve this scheme. Simulation results prove show that the proposed strategy can notably improve the system capacity and spectrum efficiency.


**Index Terms**

Computer Science Communications
Keywords

D2D, Cellular Networks, Resource Allocation