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## **Device-To-Device Graph-Oriented Resource Allocation in LTE Uplink using SC-FDMA**

Abstract—Future cellular networks will support device-to-device (D2D) communication and thereby enable a plethora of new applications. Through the reuse of cellular resources in the currently less used uplink spectrum, D2D can increase the efficiency of resource use and help to cope with the ever-increasing data traffic. In this paper, we present an interference-graph based approach for LTE D2D resource allocation with multi-user sharing of Resource Blocks (RB) while respecting the SC-FDMA constraint of assigning continuous RBs to each UE. The numerical simulations show great potential gains with an increasing amount of D2D communication pairs per cell.

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