# Achieving Fair Cell-Edge Performance: Low-Complexity Interference Coordination in OFDMA Networks

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*Abstract*— **We propose a low-complexity downlink interference coordination algorithm in OFDMA networks. The algorithm aims to achieve high proportional fairness among cell-edge users, as the effects of inter-cell interference are most noticeable in cell-edge areas where users are interfered by signals from neighbor base-stations. We demonstrate that the performance of our algorithm is greater than that of a decentralized algorithm which aims at interference randomization. Our algorithm consists of two stages. In the first stage, it constructs a bipartite graph that describes which set of base-stations imposes significant interference on each cell-edge user. In the second stage, exploiting the structure of the constructed graph, it solves an optimization problem to attain high proportional fairness.**

*Keyword*—**Cell-edge performance, Proportional fairness, Downlink interference coordination, OFDMA networks.**

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