



## ON INTER-CELL INTERFERENCE IN OFDMA WIRELESS SYSTEMS (TueAmOR3)

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✳ **Abstract :** Orthogonal Frequency Division Multiple Access (OFDMA) is a multiple access technique that is starting to be examined as an alternative to Code Division Multiple Access (CDMA) for cellular mobile systems. Until recently, OFDMA had received little attention for multicellular applications and as a consequence of this, few results are available on the impact of interference on OFDMA communications. In this paper, we study the behaviour of an OFDMA system with respect to the inter-cell interference. We show that due to the heterogeneous nature of the interference, interference estimation combined with soft-input channel decoders can be used to improve the performance of the system. We show through realistic simulations that OFDMA can cope with intercell interference even without estimating it. Moreover we evaluate the performance gains obtained for different interference estimation techniques and show that a low complexity algorithm can be used to achieve gains of up to 2 dB.