

# Performance Evaluation of Linear-Programming Based Resource Management Schemes in the UMTS Enhanced Uplink

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## *Abstract*

*The recent progress of WCDMA Evolved is the proposal of the enhanced uplink in UMTS for high speed packet data access. Our main contribution is presenting an interference model to characterize the system behavior in the multi-cell environment with mutual influence among all the NodeBs in the whole system. Two types of linear-programming based radio resource management schemes, both non-iterative and iterative, are proposed to achieve maximum resource utilization while still ensuring that unnecessary outage cases are avoided. The feature of 'DOWN' grants to restrain the interference from soft handover area can also be included in such rate allocation algorithms. Finally the system performance under various resource allocation schemes are evaluated and compared by Monte-Carlo simulations.*