

Capacity Analysis for Macro/Clustered Femto Coexisting Networks

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Abstract—The randomly deployment of a femtocell has acritical effect on the performance of a macro-cell network due to cochannel interference. In our previous work, we are able to verify that the block diagonalization (BD) with an antenna selection algorithm over macro/femto coexisting network shows a better performance from the respective of both macro mobile station (MMS) and femto mobile station (FMS) utilizing the advantage of a multiple input multiple output (MIMO) system. In this paper, we describe the closed-form expression of capacity for both MMS and FMS over coexisting network. Through simulation, both MMS and FMS have a higher capacity gain due to the successive interference mitigation as compared with the case of selfish beamforming at femtocells. Besides, the outage probability of MUEs can be effectively maintained in the presence of a severe interference from femtocells.

Index Terms—Block Diagonalization, Interference Mitigation, Capacity, Coexisting Networks



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