

In this paper, we study the information theoretic maximal degrees of freedom (DoF) for the symmetric multiinput-multi-output (MIMO) interfering broadcast channel (IBC) with arbitrary antenna configurations. For the G-cell K-user $M \times N$ MIMO-IBC network, we find that the information theoretic maximal DoF per user are related to three DoF bounds: 1) the decomposition DoF bound $d^{\text{Decom}} = MN/(M + KN)$, a lower-bound of asymptotic IA; 2) the proper DoF bound $d^{\text{Proper}} = (M + N)/(GK + 1)$, an upper-bound of linear IA; and 3) the quantity DoF bound d^{Quan} , a zigzag piecewise linear function of M and N . For most configurations in Region I where $R^I = \{M/N \mid d^{\text{Proper}} < d^{\text{Decom}}\}$, the maximal DoF are the decomposition DoF bound and achieved by the asymptotic IA. For all configurations in Region II where $R^{II} = \{M/N \mid d^{\text{Proper}} \geq d^{\text{Decom}}\}$, the maximal DoF are the quantity DoF bound and achieved by the linear IA. To obtain the tight upper-bound, we propose a unified way to construct genies to help each base station or user resolve the maximal number of interference. According to the feature that the designed genies with the same dimension can derive identical DoF upper-bound, we convert the information theoretic DoF upper-bound problem into a linear algebra problem and obtain the closed-form DoF upperbound expression. Moreover, we develop a non-iterative linear IA transceiver to achieve the DoF upper-bound for antenna configurations in Region II. The basic principles to derive the DoF upperbound and design the linear IA transceiver to achieve the DoF upper-bound can be extended into general asymmetric networks.